ENGINEERING NEWS-RECORD

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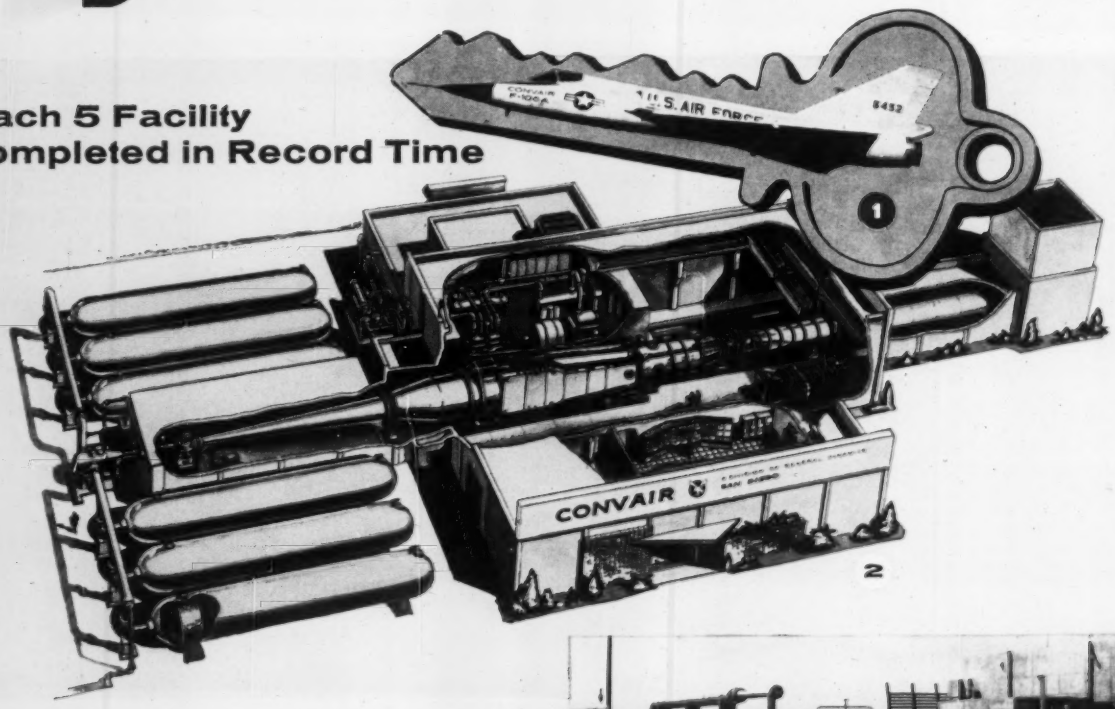
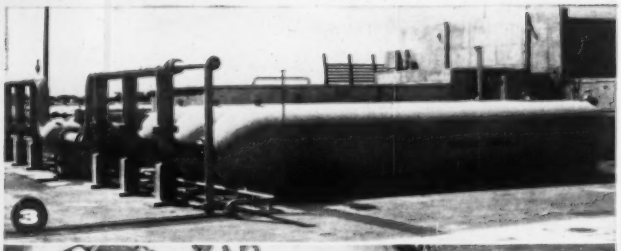
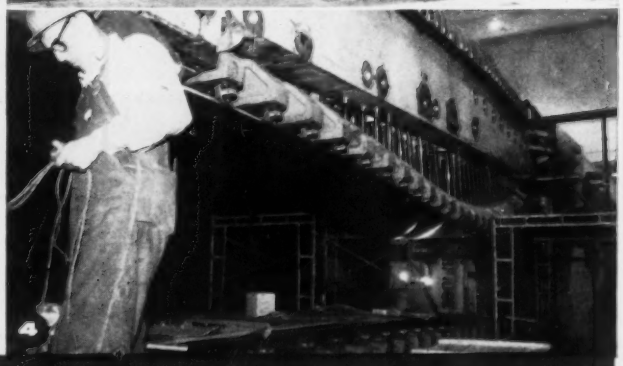
CB&I turns the key on construction of Convair Supersonic Wind Tunnel

Mach 5 Facility Completed in Record Time







CB&I specialists, working in cooperation with *Flui Dyne* Engineering Corporation, handled the engineering, fabrication and assembly of this country's first "turn-key" supersonic wind tunnel. Built for Convair Division of General Dynamics Corporation, the intermittent *blow-down* type tunnel is capable of simulating speeds that range from Mach 0.5 to 5 (five times the speed of sound).

This $3,500,000 project for Convair is one of several supersonic test facilities in which the coordinated facilities of CB&I are playing a major role. These same engineering, fabrication and erection services can provide *you* with the benefits of *one source craftsmanship in steel*—with which CB&I has served industry, science and government for almost seven decades. Write our nearest office for a copy of the *Convair Story*.

E62CB

1. F-106 A **Delta Dart,** supersonic all-weather interceptor being manufactured by Convair for the United States Air Force.

2. Sketch shows major components of CB&I-built 3,700 MPH wind tunnel at Convair plant, San Diego, California.

3. Six CB&I-built tanks store air at 600-psi for intermittent blow-down type tunnel.

4. Tunnel "throat" or nozzle is comprised of flexible plates to generate flow from Mach 1.6 to 5—was precision assembled to few thousandth of an inch accuracy.

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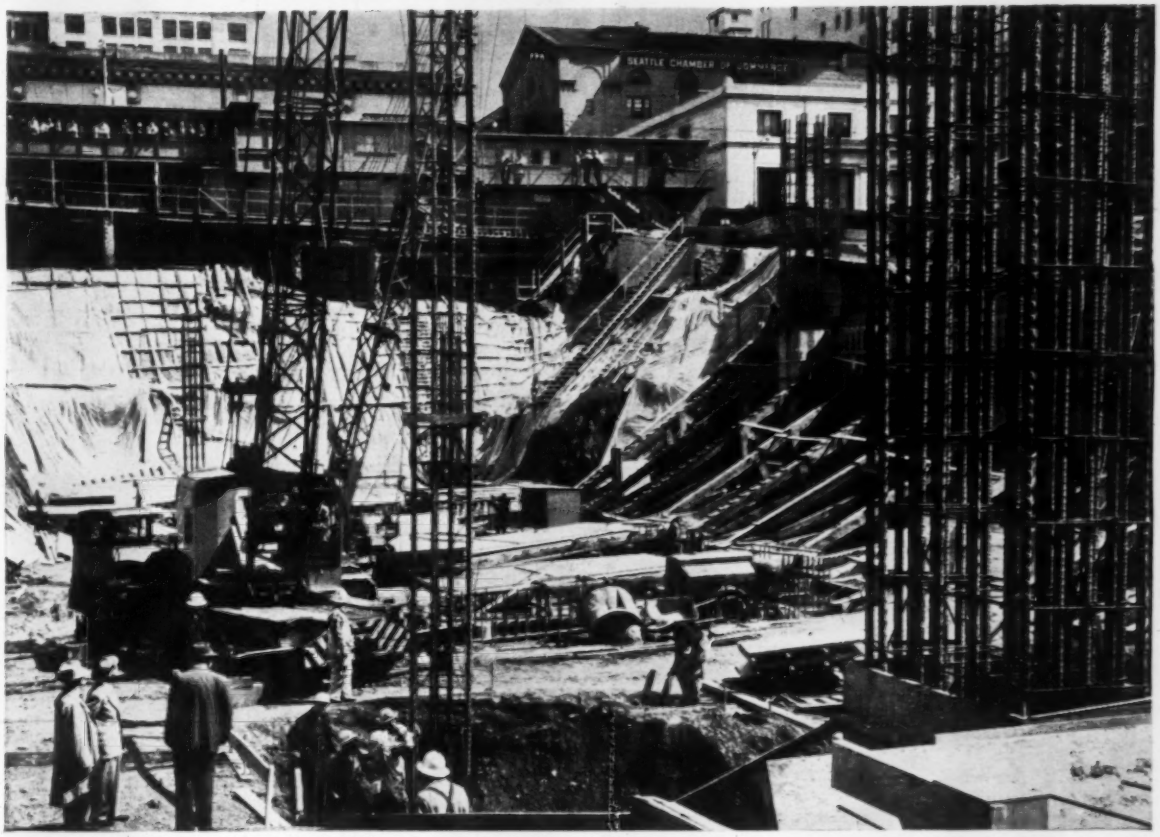

Excavation for Seattle's new Norton Building. *Management:* Metropolitan Building Corporation.

Steel-Reinforced Columns Weigh 16 Tons Before Concreting

Architects: Bindon & Wright, Seattle, in consultation with Skidmore, Owings and Merrill, New York. General contractor: Howard S. Wright & Co., structural steel fabricator: Isaacson Iron Works.

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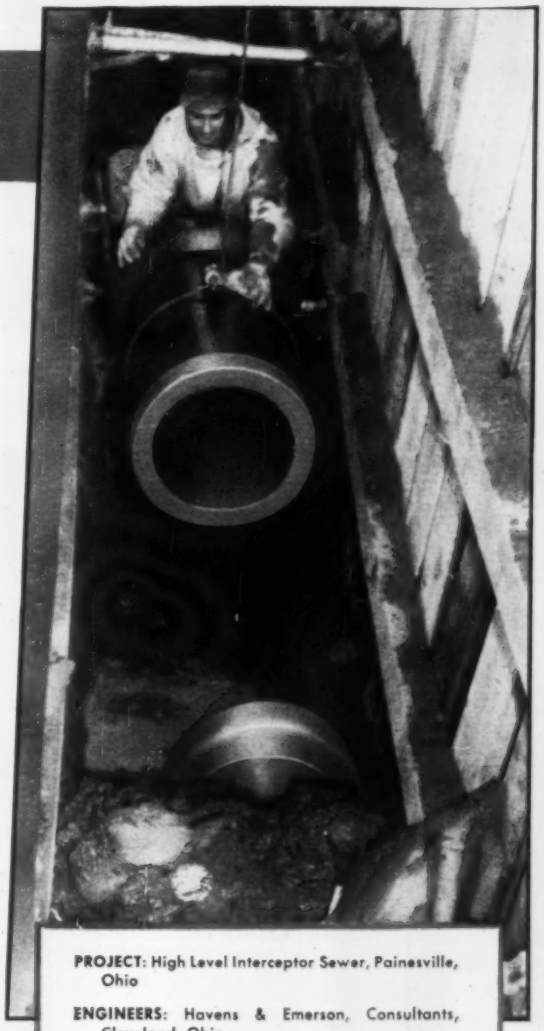

PROJECT: High Level Interceptor Sewer, Painesville, Ohio

ENGINEERS: Havens & Emerson, Consultants, Cleveland, Ohio

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PIPE: On section shown: 18" Universal Tylox-Coupled Vitrified Clay Pipe

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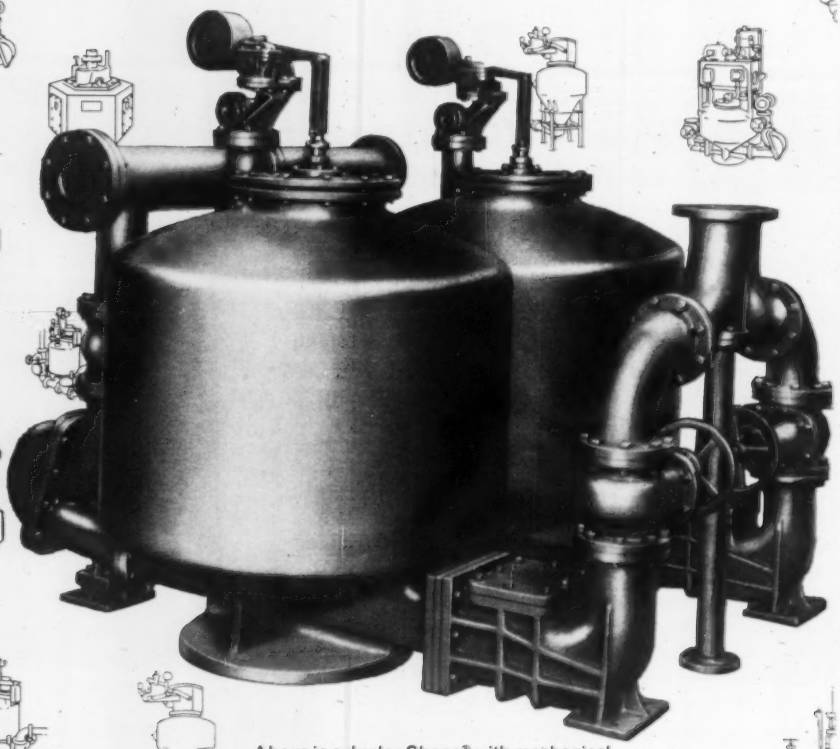

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by
James M. Jenks

In a sense, this is the golden age for engineers. Once buried in corporate obscurity, many of them have emerged today as likely heirs apparent to the big jobs — and the big rewards — of business and industry. One impressive indication of this growth is that money spent in research and development over the past fifteen years has increased six-fold.

Despite this stepped-up activity, however, the once disorganized scramble for engineers seems to have ended . . . at least temporarily. And perhaps it's a good thing. Actually, the more perceptive engineers had always realized that unusually high starting salaries were often illusory. The gap between money being offered beginners and the incomes of experienced men was narrowing rapidly. Further, more and more thinking technical men concluded that even top engineering salaries are low when compared with the remuneration of highly placed general executives.

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Happily, there is a route to increased incomes that is satisfying to both engineer and company alike. This route leads into *management*. It is no easy road but the rewards are great for those willing and able to follow it.

In the vast, complicated world of business the engineer has much to learn. As a manager his duties will bring him into contact with accountants and buyers, advertising men and salesmen, lawyers and other executives. A strange new set of circumstances confronts him. He must gain confidences and be understanding, learn and instruct, be sympathetic, paternal or commanding as conditions require . . . and all in the midst of a business organization about which his knowledge is limited.

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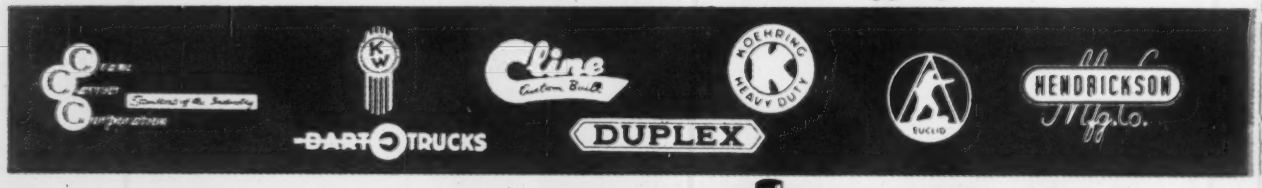

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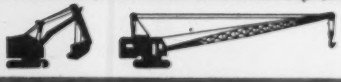

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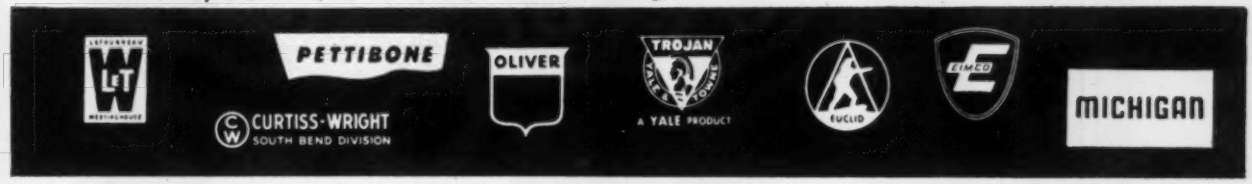

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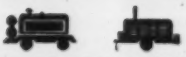

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IT PAYS TO STANDARDIZE ON...

No Proof of Iraq Corruption

SIR—Naturally, I have read each of your articles on Iraq with absorbing interest as they provided last-minute information on the continuing accomplishments of the Development Board. (Mr. Nelson was a member of the Board from 1952 to 1956—Editor.) The rate at which projects have been completed is not as good as I expected, but all in all the direction and drive seem to have been maintained.

I was very fond of King Feisal and had the greatest admiration for Nouri-as-Said. Almost without exception I found the Iraquis in high government positions to be working honestly and earnestly for the development of their country and the raising of the standard of living of the people. Not in a single instance did I find any evidence in the Development Board of corrupt use of the vast sums of money being spent for projects. I expect in the great majority of cases the only damaging evidence that will be brought out in the trials will be the loyalty of the officials to the King and former government.

We can hope that the new government officials are realists and are sufficiently cognizant of world conditions not to be deluded by the promises of the pseudo-neutralists and the anti-Western powers. Iraq occupies an enviable position because of its access to sufficient foreign currency to meet all its needs. It should provide itself with information of the experience of other countries in barter and "gift" deals before throwing away its favorable position.

WESLEY R. NELSON
Rangoon, Burma

Editor's Note: After leaving Iraq in 1956, Mr. Nelson spent 10 months with the International Cooperation Administration in Washington as chief of the South-Asia Division (India, Pakistan, Nepal, Afghanistan and Ceylon), then joined the consulting engineering firm of Tippetts-Abbett-McCarthy-Stratton on a two-year contract in Rangoon where the firm is acting as engineering advisor to the Burmese government.

With a staff of about 20 American engineers, Mr. Nelson is serving as chief engineer and deputy general manager and devoting most of his time to the planning of a large irrigation and power project near Mandalay. This Mu River project involves the storage and diversion of waters of the Mu River, a tributary of the Irrawaddy, for the irrigation of an area equivalent to 550,000 net acres double-cropped 100% of the time, plus 20,000 kw of firm power.

The project appears to be a valuable one, but completely satisfactory field surveys have not been possible because the area is still the scene of insurgent activity.

Wanted: Better Bridge Data

Sir—Testing sixteen 50-ft simple spans (ENR July 10, p. 49) of proportions impractical for actual bridges, without testing similar 3 span and 4 span structures, can hardly furnish dependable information for the design of arrangements now most frequently used. Continuous bridges are statically safer and dynamically more advantageous as well as being economically superior to simple spans.

The writer requested more than 10 years ago (ENR Jan. 8, 1948) that the behavior of a bridge consisting of composite simple girder spans, built at that time, and existing continuous girder bridges should be established by measurements, after which economic comparisons based on these data should be made. Despite the immense bridge building program ahead, nothing was done, and subsequently a large number of bridges with widely different static and dynamic characteristics were built (ENR May 22, p. 12).

The now contemplated testing of the 16 bridges mentioned above is unsuited for assuring uniform static and dynamic characteristics of bridges other than simple spans similar to the specimens. Likewise, no data will be obtained suitable for the rating of existing bridges.

Progressive developments in measuring stresses, deformations and vibrations have occurred, which can facilitate the establishment of the static and dynamic characteristics of actual struc-

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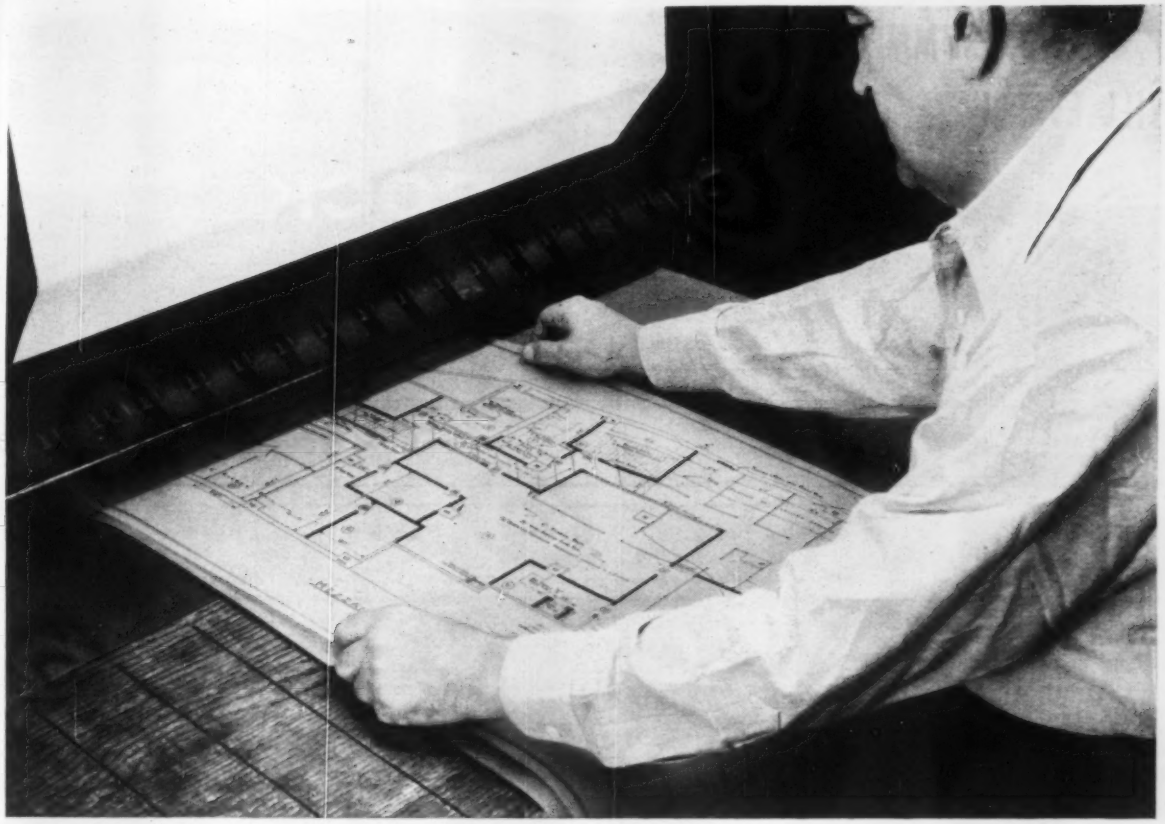

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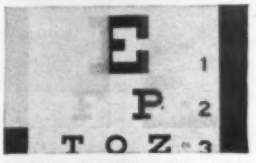

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Portland cement uniquely bonds *full 32-inch-wide* Insulrock slabs—for additional resistance to abrasive handling, even the surface is sprayed with an indurating cement coating that adds strength, improves appearance (no loose fibers drooping from surface).

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Investigate Insulrock savings. Get details today.

Insulrock's year-around weather resistance makes Insulrock perfect for outside exposed areas, like this overhang.

Technical note:
soaked, frozen, thawed, then dried out, Insulrock retains original strength, is stronger than minimum specifications, works 100% efficiently for you.

Insulrock dares the elements. Outside storage proves unequalled durability under all-year weather pounding.

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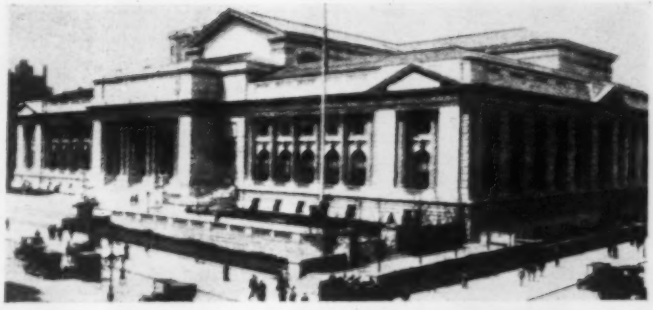
Plants: LINDEN, NEW JERSEY
RICHMOND, VIRGINIA
NORTH JUDSON, INDIANA

When Lord Electric Company wired the New York Public Library 51 years ago, the company was already a leader in what was then a relatively new field.

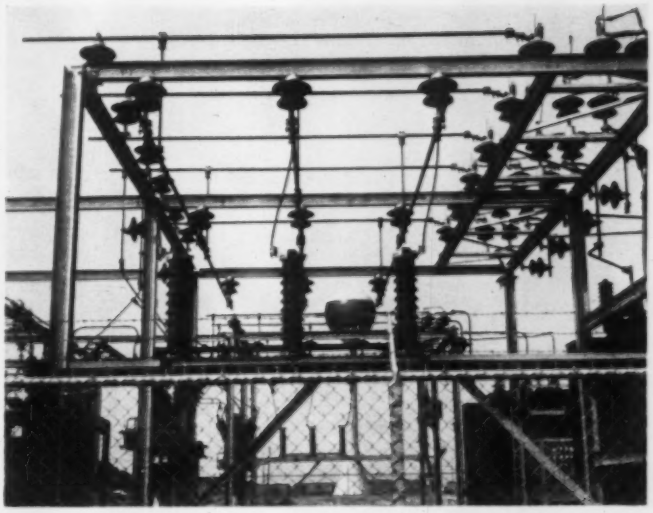
These days, Lord ranks not only as one of the largest electrical contractors in the United States, but as one of the truly veteran firms of its kind. Since 1895, Lord has unconditionally guaranteed the quality of performance on each of its thousands of jobs, earning an unexcelled reputation for workmanship and integrity.



1907-1958

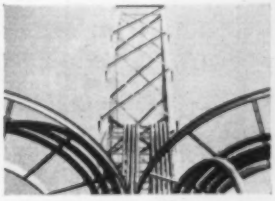
Representative of its current contracts is Lord's role in the electrification of such industrial projects as that shown in these pictures. Lord's clients include leading companies and government agencies in all parts of the country, with jobs ranging from stores and office buildings to industrial projects and highly technical AEC and defense projects.

This company is interested in bidding on your next electrical installation. A note from your desk will bring a history of the firm, a review of its work, and financial references by return mail. Address: Lord Electric Co., Inc., 10 Rockefeller Plaza, New York 20, N. Y.

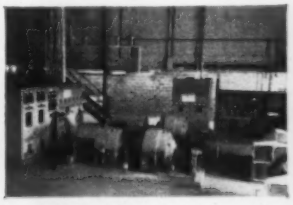


Partial view of 16000 KVA-24.6KV outdoor substation. Three lightning arresters in the foreground, flanked by two 500 KVA transformers on the right, and two 24.6 KV oil circuit breakers on the left.

PARTIAL VIEW of a 36,000 pound draw bench which is used to draw either copper or brass tubes. This machine can draw tubes 125' long and will be operated by one man.



ONE OF 3 steel towers which form part of the catenary for carrying the cable rack and the 4160 volt 3/C Armolok cables 300' from the outdoor switch gear into the mill area for distribution.



TWO KW—250 VOLT DC motor generator sets showing the high voltage AC input cubicles in rear and the DC distribution cubicles on left with multi-conductor "Armolok" cables being used for distribution.

MAIN VARIABLE SPEED drive cabinet converting AC power to DC and regulating it to operate one of the draw benches. The panel is entirely automatic, requiring only the touch of a button to make it run all day.

LORD ELECTRIC COMPANY, INC.

BOSTON NEW YORK PITTSBURGH PORTLAND, ORE.

Established 1895

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MODERNIZED **cast iron**

OUT OF PIPE BUYING

Specify Modernized Cast Iron Pipe and be SURE!

6 reasons why Cast Iron Pipe is #1 choice of U.S.A.

1 EXTERNAL LOAD RESISTANCE...

6" Class 150 Pipe withstands a crushing load of 17,900 pounds per foot . . . nearly 9 tons.

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Cement lined cast iron pipe and fittings will not tuberculate . . . delivers a full flow for the life of the pipe.

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42 North American cities are still using cast iron water mains laid 100 years and more ago. Hundreds more have passed the 50 year mark.

4 BEAM STRENGTH...

Cast Iron Pipe is inherently tough . . . stands up under heavy traffic load, soil displacement and disturbance.

5 CORROSION RESISTANCE...

Cast Iron Pipe effectively resists corrosion . . . vital factor in its long life and dependability.

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A full range of leak-proof, low cost, easy-to-assemble joints for pipe and fittings are available for all conditions.

Before you choose any pipe remember this important fact . . . it will save you many a headache later.

In all the history of water systems no substitute pipe has ever come close to matching cast iron pipe's century old record of dependability, long life and long term economy.

Specify cast iron pipe, and your pipe worries are over, not just beginning. Cast iron's performance is based on PROOF not claims!

THE MAN WHO CHOOSES CAST IRON PIPE TODAY WON'T PAY FOR IT AGAIN TOMORROW!

CAST IRON

Cast Iron Pipe Research Association
Thos. F. Wolfe, Managing Director
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pipe FOR MODERN WATER WORKS

you don't have to be

A BIG WHEEL TO KNOW...

... that "BIGNESS" alone does not get the job done!

The ability to coordinate equipment, skill and resources "builds" profitable performance records. It also takes specialized know-how and coordination to provide the bonds and insurance required by qualified contractors.

THE FIDELITY AND CASUALTY COMPANY OF NEW YORK continues, year after year, to keep pace with progress—providing all kinds of bonds and insurance—for all types of construction projects—in all parts of the world.

The Fidelity and Casualty Company of New York

"Writing Bonds Since 1876"

A Member Company of America Fore Loyalty Group

tures under traffic and special test conditions.

Available photogrammetric equipment can be used for ascertaining the deformations of existing structures (ENR June 19, p. 23). More important, however, the deflections and vibrations occurring in three perpendicular directions simultaneously can be measured by electronic instruments. Analysis of these data would facilitate th. dependable establishment of the behavior of actual bridges and furnish proper guides for design.

The contemplated tests belong in the model testing category, and the results of such testing are not directly and generally applicable in design. Therefore, it is recommended that actual bridges should also be investigated.

LOUIS BALOG
Consulting Engineer
Binghamton, N. Y

Soils Engineer, Too

SIR—I heartily endorse Clark E. McHuron's suggestion to team up the engineering geologist with the civil engineer and the contractor to prepare pre-bid data (ENR Sept. 4, p. 13).

But I would like to make the further suggestion that the engineering geologist be teamed up with the soils engineer for those projects which require not only bedrock and soil information at a specific site, but where maps need to be compiled to show the distribution of materials grouped by engineering properties for a large area or region to facilitate site selection and assist with feasibility studies.

ALLEN H. NICOL
Consulting Engineering Geologist
Washington, D. C.

The Right Owner

Editor's Note: The Massachusetts Municipal Airport unit price report (ENR Aug. 14, p. 82) gave North Andover instead of the City of Lawrence as the owner. The airport is located in the adjacent town of North Andover. Welbilt Construction Co., contractor for the terminal building, is in Boston.

CALENDAR

Federation of Sewage and Industrial Wastes Associations, annual meeting, Sheraton-Cadillac Hotel, Detroit, Mich., October 6-9.

National Conference on Industrial Hydraulics, sponsored by Illinois Institute of Technology, Sherman Hotel, Chicago, Oct. 16-17.

National Society of Professional Engineers, fall meeting, St. Francis Hotel, San Francisco, Calif., Oct. 23-25.

American Concrete Institute, regional meeting and headquarters dedication, Statler Hilton Hotel, Detroit, Oct. 27-28.

International Asphalt Congress, third meeting, Paris, France, Oct. 27-29.

ERECTED WITHOUT special skilled help. Gilbert's crew constructed the complete plant under the supervision of Construction Equipment Company, local Blaw-Knox distributor. Simplified components saved two weeks' time, Gilbert estimates. Plant is rated at 100 yards-per-hour.

"Dollar-for-dollar I got the best value from Blaw-Knox"

"These units were selected after careful survey and analysis. They combined a variety of features to provide the best dollar-value of any equipment we looked at," says J. M. Gilbert, President and General Manager of Concrete Materials, Inc. of Decatur, Alabama.

Concrete Materials, Inc. owns a Blaw-Knox Ready-Mix Operator's package—three 5½-yard Hi-boy Truck Mixers and a one-stop Concrete Batch Plant. And, like Ready-Mix Operators everywhere, Concrete Materials, Inc. is in business to stay, with high output, precision-engineered Blaw-Knox Equipment. See your Blaw-Knox distributor for helpful ideas on how the proper equipment leads to bigger profits.

¾" SLUMP concrete is regularly handled by the Hi-boys. Gilbert produces air entrained concrete with low water content. He mixes only 15 gallons of water per yard of low slump concrete. Heavy Manten steel in the Hi-boy drum and blades withstand the punishment of harsh stone aggregates used exclusively.

"MANEUVERABILITY is important," Gilbert says, "since we frequently must get through tight areas around buildings, stacks of material and the like. Overall dimensions of the truck and mixer are 18-inches shorter and 3-inches lower because of the Hi-boy design." Since beginning operations early last year maintenance on the equipment has consisted only of routine lubrication.

BLAW-KNOX

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When it's needed most...

Water has been essential to man's existence since the beginning of time. And with the prospect of a world population that may double within two generations, the demands of the future must be carefully considered.

When your water supply system comes face to face with the challenge of increased consumption, will its efficiency be impaired by diminishing carrying capacity? Not if your community is served by Lock Joint pipelines. No tuberculation or corrosion will reduce the initial high carrying capacity of Lock Joint Concrete Pressure Pipe.

Nor, when you need it most, will it be necessary to replace a Lock Joint pipeline because of deterioration or failure. Durable, trouble-free Lock Joint Reinforced Concrete Pressure Pipe offers the tremendous advantages of low first cost and minimum operational and maintenance charges. More important, it is the pipe of maximum economy for the future.

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THE CONSTRUCTION WEEK

FASTER AND FASTER—Highway and bridge construction contract awards are being made at an ever-increasing pace. During the first two weeks of this month, awards averaged $124 million a week. The average weekly rate in September was $120.2 million. So far this year, highway awards of $2,942 million are 20% above the same period in 1957. Bridge contracts are 2% higher at $582 million.

SEWAGE GRANTS WILL STAY—Federal grants for municipal sewage treatment plant construction won't die—regardless of Administration efforts to end the $50 million-a-year program next June. New Health-Education-Welfare Secretary Arthur S. Flemming says the White House wants Congress to turn the program over to the states along with federal telephone tax funds to help finance it. If Congress refuses—and it may—the Administration will keep the funds flowing under existing legislation.

SPENDING TO SAVE—Kentucky has paid an outside consulting firm $470,000 for a two-year overhaul of State Highway Department operations. Although some engineers in the department raised eyebrows at the cost, Deputy Commissioner Charles Byrley believes the reorganization will save millions over the years. One result: Installation of electronic computers for data processing.

VACUUM-COOLED AGGREGATES—This country's first vacuum-cooling system for concrete aggregates is being used at the Corps of Engineers' Hartwell Dam, on the Savannah River. Three high-pressure steam-jet systems are cooling mixed aggregate in 125-ton batches, sand in 80-ton batches and cooling mixing water continuously. Guy F. Atkinson Co., San Francisco, is the contractor. The equipment was developed by Croll-Reynolds Co., Inc., Westfield, N. J., and John Hightower, an engineer now on the Atkinson staff.

BIG HYDRO LOAN—The World Bank has loaned $73 million to public and private interests to finance foreign exchange costs of the first stage of 1.1 million kw hydroelectric project in Brazil. It will be the largest hydroelectric project ever undertaken in Latin America and will boost Brazil's power capacity by 40%.

A FIRST?—Radar is being used to make traffic counts for the Florida State Road Department. The unit is suspended over the highway. Since it counts vehicles instead of axles as the standard tube counter does, it has given a more accurate hourly vehicle count. It also can be used to tally traffic in individual lanes.

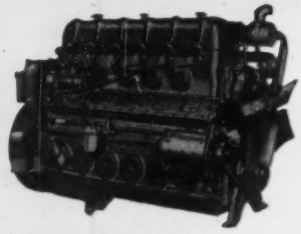
"Power to improve performance and cut fuel costs in half"

Mr. Harry Wagner of Wagner Crane Service, Bronx, N.Y., says, "This is our first experience with diesel power on our cranes. And we are very enthusiastic about our 45-ton P&H 575 Crane powered with two 6-cyl. P&H Diesels.

- **"P&H Diesels are more powerful than gas engines. They never stall. Even on an idle engine you can pick up a heavy load.**
- **"They cut fuel costs in half! It takes only $15 to $20 of diesel fuel a week to operate this 45-ton rig.**
- **"Morning starts in cold weather are no problem with P&H Diesels. When it comes to starting, they kick right over.**
- **"P&H Diesels are easy to take care of—all fittings are easy to get at—and all wearing parts are interchangeable."**

Until development of the P&H Diesel, owners had to be satisfied with diesels which did not fully utilize all the potentials of truck cranes that have to idle hours on end. But P&H has changed this situation. Now, when a truck crane picks up a heavy load the P&H Die[illegible]esponds instantly —without fouling.

For all your construction equipment, specify the one diesel with all the features that deliver the best in performance and operating economy —P&H Diesel! Write Dept. 415B, P&H Diesel Engine Division, Crystal Lake, Illinois.



6-Cyl. P&H Industrial Engine for "upper"—205 HP.

6-Cyl. P&H Automotive Engine for "lower"—280 HP.

P&H DIESELS

Fastest Growing Name in Diesel Power

WASHINGTON OBSERVER

- Pentagon gives up on construction cuts
- Asphalt suppliers happy over test
- Dual-purpose reactor gets green light

● **Military construction will continue at a $2 billion rate for the next two or three years.** That's the latest estimate of Defense Department budget officials. The new estimate represents a shift in Pentagon plans. Budget-makers had hoped to reduce construction expenditures by some $500 million in fiscal 1959 (ENR Sept. 18, p. 182).

Here are the big factors in the new outlook: Speeded up construction for the ballistic missiles program—bases for the Atlas intercontinental weapon, and for the on-coming Titan—and continued building of airstrips for dispersal of Strategic Air Command B-52 and B-47 bombers.

With these programs on a high priority, Defense officials acknowledge that spending cannot be brought down to $1.5 billion annually. As a consequence, look for the Administration to wield a bigger hatchet on non-military spending programs in its effort to reduce a mounting federal deficit that will run $12 billion this year.

—

● **The Army Engineers-Air Force test of asphalt paving for runways used by heavy bombers is over—and asphalt people are happy.**

The test data are being analyzed, and final conclusions won't be submitted to the House Armed Services Committee until mid-November. But the pro-asphalt group thinks from what it knows so far that the pavement designed for runways stood up well. The test simulated 5,000 heavy bomber round-trips—equivalent to 20 years of actual service.

Asphalt suppliers hope the tests will end the present out-and-out Air Force ban against any asphalt for this use. The fight with portland cement concrete for this business has been going on for years, with the Air Force generally passing over asphalt.

Asphalt producers want their material to be considered right down the line. They claim asphalt is just as good as concrete and many times is cheaper, and that portland cement concrete should be specified only for those areas where it is required because of fuel spillage and heat blast. Otherwise, they want to compete strictly on the basis of which is most economical.

—

● **The government intends to go ahead with construction of a dual-purpose atom reactor at Hanford, Wash.—a project originally opposed by the Administration.** Congress authorized the plutonium producing and power producing project last summer. Construction is scheduled to begin sometime next year.

Final engineering design of the $143 million project has been assigned to General Electric Co., which already operates the Hanford works. Negotiations are being conducted with Burns & Roe, New York City, for architect-engineering services in connection with design of supporting facilities not assigned to General Electric. The reactor will produce plutonium for weapons, and eventually 300,000 kw of electricity. The Atomic Energy Commission has asked for and received $10 million from the Bureau of the Budget for the engineering design contracts.

US RUBBER CONVEYOR BELTS

"They proved themselves in our first 10 plants, so we picked them for our 11th!"

says director of sand and gravel company

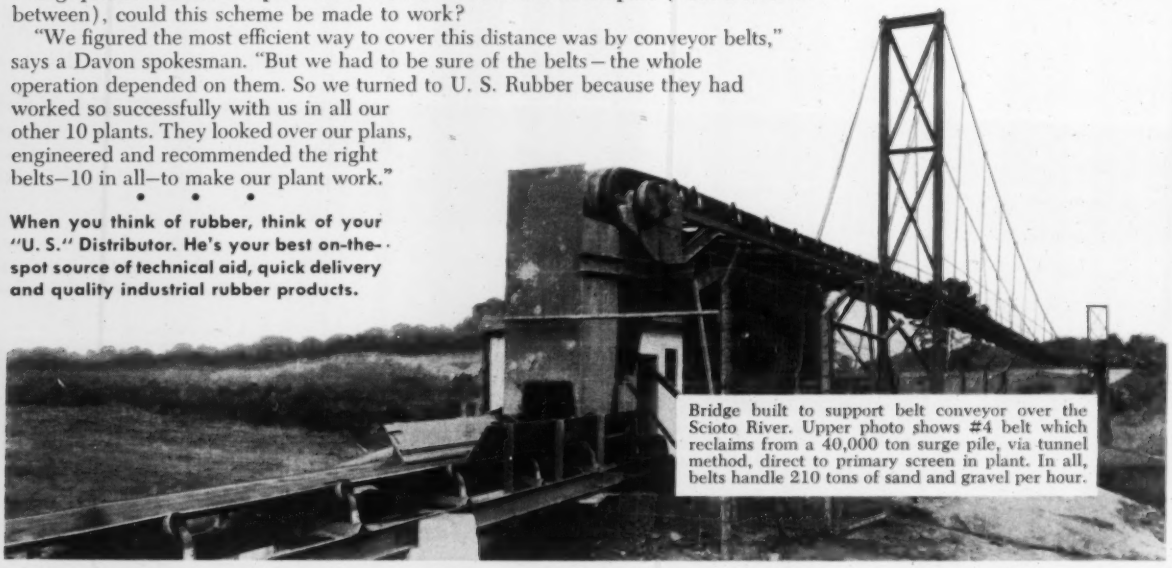
When Davon, Inc., built its 11th plant recently, they decided it would be more economical to bring the material to the plant rather than the plant to the material.

Big question: Since the plant and material were half a mile apart (with a river in between), could this scheme be made to work?

"We figured the most efficient way to cover this distance was by conveyor belts," says a Davon spokesman. "But we had to be sure of the belts—the whole operation depended on them. So we turned to U. S. Rubber because they had worked so successfully with us in all our other 10 plants. They looked over our plans, engineered and recommended the right belts—10 in all—to make our plant work."

• • •

When you think of rubber, think of your "U. S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial rubber products.



Bridge built to support belt conveyor over the Scioto River. Upper photo shows #4 belt which reclaims from a 40,000 ton surge pile, via tunnel method, direct to primary screen in plant. In all, belts handle 210 tons of sand and gravel per hour.

US RUBBER

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

"We've got the buyers, but sometimes the buyers can't get the financing they need"

"Interest rates well above a year ago will become a permanent part of our economy"

"Most lenders are shying away from long-range commitments"

"They're not building very far ahead of orders. Everyone's afraid of a return to tight money"

With tight-money talk on everyone's lips today, builders are asking . . .

Will Housing Hit Skids Again?

It looks like homebuilders are again faced with a weakening market because of the squeeze on mortgage credit. That's the report from builders and mortgage lenders across the country.

The pinch is still gentle, ENR's survey of 28 cities shows. Lenders in most areas say there is no actual shortage of funds for mortgages now.

But all the housing people contacted by ENR expect the situation to get worse in the months ahead. However, some type of stimulant for private housing may be forthcoming from the next session of Congress **(see next page)**.

Builders believe construction will continue at a brisk pace. Most of them have enough commitments from mortgage lenders to keep work going through the rest of the year and into 1959. However, some builders with commitments may have a harder time persuading banks to accept their clients.

As the sales manager for a large Cleveland builder says, "We've got the buyers, but sometimes the buyers can't get the financing they need." When money tightens, lenders don't pull the rug from under builders holding commitments. But they can demand better credit or a bigger down payment from the home buyer. This already is being done in a few areas.

A more tangible sign of money tightening is the gradual rise in mortgage interest rates from the low point reached last spring. Rates range from 5% to 6%, but most activity is near the top rate. Many cities have seen an increase of ¼% to ½% in their rates since mid-August.

Discounts have appeared again for the fixed interest mortgage, backed by the Federal Housing Administration and the Veterans Administration. A discount is a deduction from the mortgage's face value by the lender. For instance, if a home buyer needs a $10,000 FHA-insured mortgage, the lender might lend $9,800. That would be a discount of 2%, called "2 points." But interest is charged on the full $10,000 and the full amount must be repaid.

The biggest discounts naturally are found on the lowest-interest mortgages —those guaranteed by the Veterans Administration. The market has moved beyond the point where their 4¼% yield is attractive. Eight-point discounts are reported in some areas for VA mortgages, though the average probably falls between four and six points. In a few areas, ENR was told, lenders are no longer accepting VA mortgages.

FHA mortgages are being discounted in 10 of the 28 cities surveyed. The 5¼% interest they carry is still a good return in many regions, however. Discounts reported range from 1 to 5½ points, averaging about two points. The discounting began in August, the FHA reports.

• **How tight?**—Homebuilders are due for a greater pinch before money costs stabilize. Norman Strunk, executive vice president of the U.S. Savings & Loan League, believes "interest rates substantially above a year ago will become a more or less permanent part of our economy, subject to easing only during a recession." A year ago September, rates on conventional mortgages were at a national average of about 5.6%.

There is some optimism about the future but not much. A banker in San Francisco says, "Some of my colleagues are optimistic about the money situation. They think things will loosen up in the spring. But they won't back this up by offering to make loans on today's terms for builders to claim several months from now. Some big builders who cover all bases far in advance are getting commitments into spring. But most lenders are shying away from such long-term commitments."

The pickup in the economy and the huge money needs of the U.S. Treasury are factors spurring the rise in money rates. Bonds must be sold to pay the bills as public works programs and industrial expansion plans are hauled off the shelf. These offerings—corporate, municipal and state—are beginning to divert money previously available for home mortgages.

• **Firmer costs**—A continued tightening of money can bring other results. Already, the cost of housing shows signs of rising. The builder must have a construction loan to build. Since bank rates moved up, his borrowings have become more expensive. If he's to maintain the same profit per housing unit, the builder must pass on this increase to the buyer.

The homebuilder, then, fears a rise in money costs for two reasons:

• It reflects an actual drying up of mortgage funds.

• It prices his houses out of reach of the largest potential market—the average wage earner.

One of the unique features of the 1958 market was a return to low-cost housing. In almost every city there is brisk activity in the $13,500-and-under range. Much credit goes to the Federal National Mortgage Association's purchases, without discounts, of government-backed mortgages in this range. With this support, lenders were glad to take mortgages on economy houses, knowing they could sell them to the agency if better investment opportunities appeared. Now the incentive is gone. The funds allotted for the purpose are committed. And builders again

. . . Homebuilders in most areas are consoling themselves with the

face lenders unwilling to accept fixed-interest mortgages.

This could put builders back to where they were in 1956. Then, Labor Department statistics show, only 27% of the new homes were priced within the $12,000-and-under range—the range of 46% of American families. Homes priced at $15,000 and above represented 44% of housing starts but reached a market containing only 33% of families.

• **Good year**—Homebuilders in most areas are consoling themselves with the prospect of a fairly good 1958 housing year. Although the recession was felt in several areas, most of the building fraternity is enjoying a predicted 1.1 million-start year. That's much better than the 991,000 starts in 1957 and close to 1956's 1,094,000. But it's still a far cry from the 1.3 million starts in 1955.

• **Speculation scarce**—Builders are pacing their work cautiously, the survey discloses. Few build on speculation; most erect one or two houses as models, then wait for sales. This caution is increasing as the season wears on. "The industry is not building very far ahead of orders because everyone's afraid of a return to tight money," says E. T. Rice of Denver's Home Builders Association.

Builders say there are fewer unsold houses than there were last year, except in areas hit hard by recession. This reflects hard selling and cost cutting. These are the economies most often mentioned: block instead of cast-in-place concrete foundations; asphalt tile instead of hardwood floor; smaller and fewer bathroom facilities; smaller lots; less brick in exterior construction; gravity instead of forced-air furnaces; composition shingle instead of wood; no built-ins and no fireplaces. The house itself is smaller—1,100 to 1,200 sq ft.

A builder in a San Francisco suburb says he entered the low-cost field because of earlier trends toward "extras," and the resulting higher prices. "Every year builders come out with some additional frills. Buyers love them, but the frills keep pushing the cost of houses higher. Now, some of us are starting at the bottom of the ladder again."

This builder also gets lower bids from subcontractors. They cut their price when he points out that he expects to double his volume by building low-cost units. He claims to be making more profit now on $13,550 houses than on the $18,000 type he formerly built.

A builder outside Philadelphia makes the low-cost house attractive by grouping units in fours around central park areas.

In most areas, the survey found, the box-like ranch house still leads in popularity. There is also a strong trend, especially in the East, toward the two-story Colonial. It is in third place in most areas and in some has taken second place over the split-level house. Builders everywhere report a drop in demand for the expansible attic house.

How Congress Hopes to Aid All Housing

The battle over a new housing act has begun.

First shots were fired last week by a group of mayors comprising the urban renewal committee of the American Municipal Association. They charged into the White House demanding Administration backing for a $5 billion slum clearance program.

They were rebuffed. The Administration, through Housing Administrator Albert M. Cole, hummed its sympathy for the concept of urban renewal—but not to the tune of $5 billion.

Mr. Cole told the mayors of such cities as Philadelphia, Buffalo, New Haven and Norfolk he definitely will not recommend a plan for federal grants of $500 million a year for 10 years. That was the essence of the mayors' request.

Their concern, and their early application of pressure on Washington, results from the failure of the last Congress to enact a general housing bill. One of the casualties was urban renewal, a municipal pet.

Contrary to opinions of some local officials, the bill's defeat does not foreshadow the end of big-scale federal activity in "social" areas of housing.

• **Outlook for '59**—The Administration is trying to detour the trend toward more and heavier federal spending. Nevertheless, it now seems likely that the catch-all omnibus Housing Act of 1958 will set the pattern for Democratic legislation to be introduced early in the next Congress.

There are several other factors that will influence what happens:

• **November elections**—Democrats are expected to strengthen their majorities in both the House and Senate in the upcoming elections. This will substantially reinforce the so-called liberal bloc.

• **Economic health**—Seasonal unemployment in January and February—when the housing battle probably will be fought—is expected to be high; it is always highest in those months. The increase may put total unemployment at about five million.

• **Strategic strength**—Democrats pushed through a separate, emergency housing measure early in the 1958 Congress. It contained $1 billion of new money for housing and also lowered down payment requirements on houses bought with FHA-insured mortgages. These were the tools that set the drooping homebuilding industry back on its feet and were among the biggest economic boosters voted.

But Democrats, interested also in the social aspects of general housing legislation, consider the emergency bill a strategic blunder. With that piece of legislation safely home, the Administration could—and did—stand firm later when the catch-all housing bill was presented with several objectionable features.

Not even strong pressure from the municipal lobby and from colleges (which had at stake a $400 million loan fund for dormitories, and other facilities) could salvage the bill. Even if Congress had passed the bill, a Presidential veto was certain.

"You can bet your last dollar that the Democrats in 1959 aren't going to let themselves get boxed in again," says one Congressional expert on housing. "If unemployment is as high as we think is likely and if we get as many new liberal votes as seems probable, the housing bill won't be exactly what you'd call conservative."

The 1959 housing package might conceivably include—besides staples like urban renewal, college housing, public housing, and FHA improvements—such "radical" new programs as 50-year, low-interest loans for building rental units for the elderly.

Exponents of the social viewpoint in federal housing programs actually did manage to get such a provision in the House committee bill that was defeated.

"Give us 40 more liberal Democratic votes next session," says a capital source, "and see what happens."

• **Administration views**—President Eisenhower will spell out the Administration's views on housing needs early in 1959. They probably will not have changed much since last year. He then asked for:

• A six-year program for urban renewal totaling $1.3 or $1.4 billion. (Last session, the Senate voted $1.8

billion in six years; the House, $1 billion in two years.)

• An extra $200 million for college housing loans. (Both House and Senate bills provided $400 million; the bills would also have set up a new loan program for building classrooms—$125 million in the Senate version, $250 million in the House version.)

• Liberalizing existing FHA and GI housing legislation, strengthening the Federal National Mortgage Association (Fannie Mae) secondary market functions and revival of Fannie Mae's special assistance program.

The exact nature of the Administration's proposals for bolstering the FHA and GI programs is still a guess. Congress, however, is certain to press for raising the limit on FHA mortgages (now $20,000 on one and two family houses) to $25,000 or $27,500; lowering down payments, and extending the mortgage term.

• **Why bill failed**—Two factors were responsible for the Administration's opposition to the omnibus bill of 1958:

• It came up late in the session after the Administration became convinced that a business upturn was in the works; inflation, not deflation, was considered the real enemy. This sharpened White House opposition to Democratic spending programs running several times more than had been proposed.

• Mr. Cole flatly opposed a Savings & Loan League plan for the government to insure the top portion of conventional mortgage loans for homes. The Senate did not accept the league proposal, but the House did—and on league terms.

The Administration would have accepted some such plan, but only if administered under existing FHA facilities and if it contained more stringent terms for protection of conventional mortgage users.

• **Consequences of 1958**—What damage, if any, has the lack of an omnibus housing bill done this year?

ENGINEERING NEWS-RECORD asked this question of federal and private authorities of diverse interest. The answer is: Not much.

College housing and urban renewal are potential losers, but their losses will be transitory if—as seems certain—Congress moves swiftly to enact a bill early next session.

For instance, the White House has told the Community Facilities Administration of the Housing and Home Finance Agency to receive and process loan applications for college housing right up to the point of final loan agreement.

This advance processing will put applications in shape for quick final approval and actual commitment of funds when Congress authorizes and appropriates new money. Most officials agree there will be practically no discernible setback in building starts under the college program.

The conflict between the Administration on one side and Congress and the municipalities on the other over the size of the urban renewal program will be big and noisy. President Eisenhower not only resists the idea of a $500 million a year program, but he wants to reduce the two-thirds federal share in the cost of preparing sites for private redevelopers.

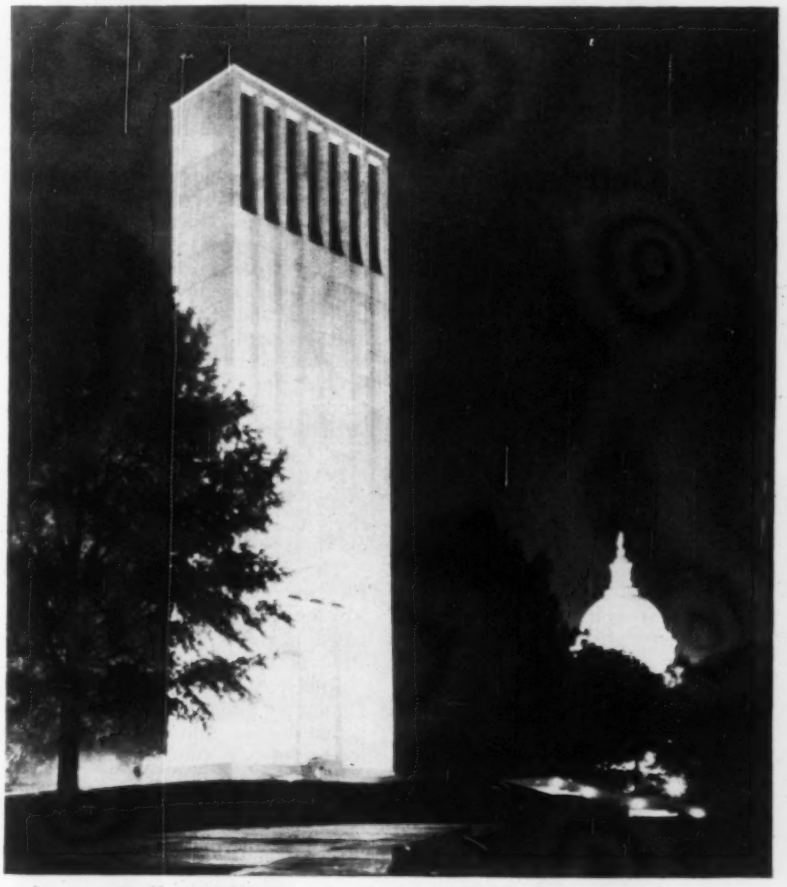
One thing is certain, however. Urban renewal will get funds—probably not as much as the Democrats would like, but more than the President seems willing to spend.

Currently, the Urban Renewal Administration of HHFA is rationing its grant commitments out of the $154 million it has on hand. Applications on file run more than twice this amount, and more are coming in.

Cutdown in grant commitments for urban renewal discourages cities that have worked their way through the laborious preliminary stages required to tackle the problem of blight.

But the current shortage of federal funds for assistance will not affect urban renewal construction ready to go ahead in the next few years. Grants already committed and contracts already made represent nearly $1.2 billion in federal assistance pledges.

Public housing suffered a psychological blow, but no physical loss, when the omnibus housing bill failed this year. The Public Housing Administration has sufficient carryover authority to take care of all proposed low-rent projects likely to qualify for federal assistance next July 1.



Bells Will Be Ringing in Taft Memorial

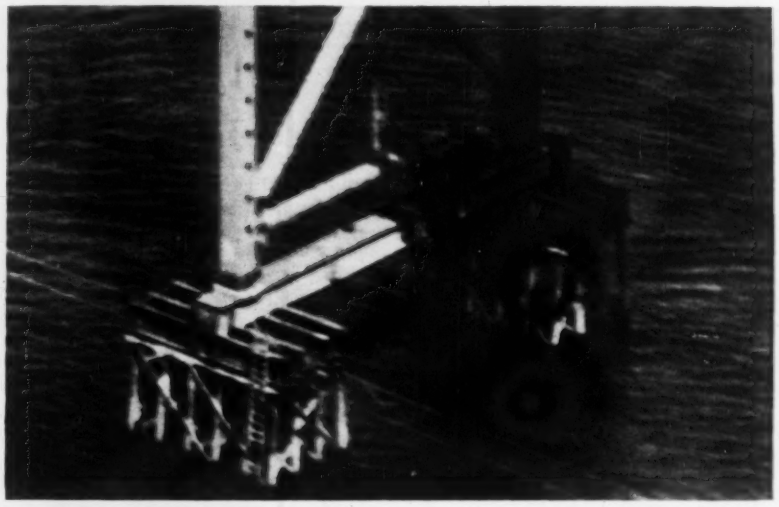
This 100 ft high bell tower in Washington, D. C., was erected as a memorial to the late Sen. Robert A. Taft. The $800,000 building is faced in marble backed up by brick. The memorial, surrounded by a moat, is 13 ft 4 in. wide by 32 ft 4 in. deep. The carillon of 27 bells is mechanically operated.

Faulty Grillage Felled Narrows Bridge

Buckling of the webs of steel beams at the base of a temporary falsework bent was the probable reason for collapse of two spans of the Second Narrows Bridge, in Vancouver, B. C. last June. So said U. S. and British consulting engineers to the Roval Commission that has been established to investigate the disaster.

In a unanimous report to Chief Justice Sherwood Lett in Vancouver last week, Ralph Freeman and J. R. H. Otter of London and F. M. Masters and J. R. Giese of Harrisburg, Pa., concluded that "instability [of the bent] was due to omission of stiffeners and effective diaphragming in the grillage, and this, in turn, was due to an error in calculations. Such diaphragming as was provided was inadequate."

Two of the engineers reportedly responsible for the calculations died in the accident. Sixteen steelworkers also perished.



COLLAPSE STARTED HERE—This photo shows the base of the falsework bent carrying an anchor span of the Second Narrows Bridge before its failure.

• **Cantilever construction**—The spans that collapsed were part of a $16 million, six-lane bridge being erected by Dominion Bridge Co. between Vancouver and North Vancouver, spanning Burrard Inlet. The structure was to be 4,250 ft long. It incorporated a 1,100 ft steel-truss cantilever span, two 467 ft steel-truss anchor spans, four 285 ft steel-truss simple spans and nine 120 ft prestressed concrete girder spans (ENR June 26, p. 21).

At 3:40 PM on June 17, work was progressing on the north anchor span. This truss, supported on a permanent pier and a temporary steel tower, was being cantilevered toward a second temporary support when it suddenly toppled into the inlet along with an adjoining truss.

• **Two-tier grillage**—The falsework the anchor span had been resting on was a two-column bent with a separate footing under each column. The box-section columns were seated on a steel-beam grillage atop the concrete-filled pipe piles.

The grillage consisted of four, short rolled sections above each pile footing and an upper tier of four stringers spanning between the two footings.

Plywood pads reportedly were inserted between the grillage tiers and between the falsework columns and the grillage stringers. Also, wood diphragms were placed between the members of the grillage.

• **Faulty falsework?**—At last week's hearing, all witnesses said they found no indication of anything "weak or faulty" about the permanent sections of the bridge that could have initiated the collapse.

They offered no criticism of the bridge design, the work of Swan, Wooster and Partners, Vancouver.

Mr. Freeman, spokesman for the consultants, testified that two mistakes in the calculations of Dominion Bridge Co., the steel erectors, led to weaknesses in the grillage. If correct calculations had been made, he said, stiffeners and diaphragms would have been provided, and the accident would not have occurred. Without these braces, the beam webs buckled.

One mistake, Mr. Freeman contended, was in computing the shear strength of the stringers. The entire area of the beams had been used in the calculations, whereas only the web area should have been considered as effective. As a result, the design was based on shear stress about 50% too small.

The second mistake was made in checking the need for web stiffeners, Mr. Freeman said. This calculation was based on the 1 in. flange thickness, instead of the 0.653 in. web thickness.

Robert Scott Eadie, vice president, Dominion Bridge Co., said an investigation by his firm after the collapse led to the same conclusions as the consultants'.

He also testified that one of the mistakes was discovered prior to the accident by someone in the Dominion Bridge office, as indicated by notations on the design sheet found later. But no action had been taken.

Mr. Eadie named John Bertram McKibbin and field engineer Murray McDonald as the deceased who had made and checked the calculations.

• **Inadequate buckling resistance**—Mr. Freeman considered the wood blocks between the grillage beams to have been ineffective:

"Considering all the circumstances, there is a distinct possibility that shrinkage occurred. But even if it did not, it is very doubtful whether the blocks, badly located and insecurely attached as they were, made any significant contribution to the stability."

Prof. Alexander Hrennikoff, University of British Columbia, told the inquiry his study of the grillage had shown that the webs of the beams "did not have the necessary buckling strength." The contribution of the wood spacers to the strength of the stringers was insufficient and uncertain, he said.

Other factors could have included imperfections in the beams, their unequal depth and the plywood pads between the grillage tiers, which were used to take up minor dimensional differences.

Prof. Hrennikoff also said that the load on the bridge had been constant for some time before the collapse and that the "last straw" probably was a result of temperature expansion of the steel.

Prof. W. M. Armstrong, UBC metallurgist, reported that one of the four stringers in the grillage had a lower yield point than the others. This beam was slightly deeper than the others and upon investigation its web was found to be slightly bowed.

Alan A. Kay, chief engineer, G. S. Eldridge and Co., said one beam also had an uneven surface that might have caused uneven loading.

Kaiser Enterprises Get a Lakeside Headquarters

This 28-story office building in Oakland, Calif., will house the various firms organized by Henry J. Kaiser. It's the major unit in the $45 million Kaiser Center, which will include retail stores and a five-level parking garage. Buildings will total 1,650,000 sq ft of floor area. The project is owned by a Kaiser enterprise, Kaiser Center, Inc. Welton Becket and Associates, Los Angeles, designed it. Robert E. McKee, Los Angeles, is general contractor. The structure should be completed late next year.

Mechanized Design Gets Cold Shoulder

The highway engineer's message of mechanized design was brought to the county highway department level last week. Result: County highway people didn't seem overly interested.

Nearly 1,000 people gathered in the plush Concord Hotel at Lake Kiamesha, N. Y., for the Sixth Annual National Highway Conference for County Engineers and Officials sponsored by the American Road Builders Association.

The general meetings were fairly well attended. But there was little apparent interest in the briefing sessions on photogrammetry and computer use. Less than 100 county representatives attended these informative conferences, which were conducted by top-level men from the ARBA, the Bureau of Public Roads, the Corps of Engineers, and the New York State Department of Public Works.

Photogrammetry and computer demonstrations presented by the Corps and more than a dozen private firms were given equally little attention.

Here as some of the highlights of the program.

John N. Robertson, director of highways for the District of Columbia and Chairman of the ARBA Committee on Electronics, said the briefing sessions had three purposes:

- To help find out how electronics could aid county operations.
- To help determine the best practical method of securing the benefits of electronic machines.
- To familiarize county engineers with the basic concepts required for the use of electronic devices.

L. R. Schureman, chief of the Electronics Branch of the Division of Development, gave an introduction to electronic computation. Mr. Schureman said it wasn't right to call computers "electronic brains." He said: "The computer is nothing more than a calculating machine which does arithmetic at extremely high speeds."

He explained simply and in considerable detail the operation of the digital computer, and worked a sample problem.

H. A. Radzikowski, chief of the Division of Development for the BPR, explained how computers could be used by counties for the solution of engineering problems, and also for general highway accounting and cost analysis. He also reminded county road men that BPR is ready to help establish computer programs.

S. E. Ridge, assistant chief of the BPR's Division of Development discussed the use of computers in the design of highways and the application of photogrammetry in the use of the computers.

Harold Bethel of the New York State Department of Public Works demonstrated how the electronic computer can be used in the composite beam design and said the New York State Department of Public Works is in the process of compiling composite beam tables, which will be available at a nominal cost to interested engineers.

Two State Pikes Get Western Links

The opening this month of two widely separated spurs of the New York State Thruway will put segments of that road in direct connection with the turnpikes of Massachusetts and Connecticut.

Northernmost of the new links is the 24 mile long Berkshire Thruway. The other is the New England Thruway.

The Berkshire Thruway will ultimately carry traffic directly from the western terminus of the Massachusetts Turnpike to the main line of the New York Thruway, just south of Albany. Approximately 18 miles of this road, running from the Massachusetts line to Route 9, about 12 miles southeast of New York's capital, was opened October 8.

The remaining six-mile stretch is pretty much complete but it cannot be used until late this year when the 5,330 ft long Castleton-on-Hudson Bridge will be finished. It will then be possible for tollroad motorists to travel nonstop from Augusta, Me., to the New York-Pennsylvania boundary line, just north of Erie, Pa. Until then, gaps in construction will leave the trunk of the Thruway basically an intrastate road.

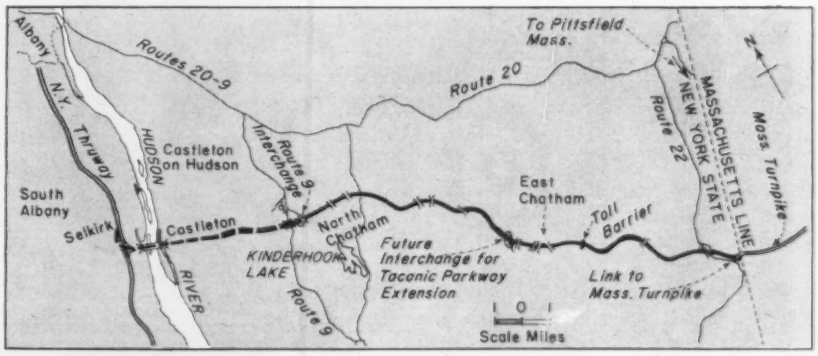
One noteworthy feature of the Berkshire Thruway is the bituminous concrete wearing surface found on all but three of its bridges. For many years, practically all bridges of any size built for the State Department of Public Works consisted of a structural deck on which was superimposed, as a separate unit, an "expendable" 4 in. thick wearing course of portland cement concrete. However, recently reported failures of three and four-year-old portland cement wearing courses on other Thruway bridges (ENR Aug. 21, p. 26) have resulted in the change of roadway materials in some areas of the state.

Because of the extremely hilly country through which the Berkshire Thruway is built, special attention is paid to drainage problems. Embankments of appreciable height are benched at 10 ft intervals. Long, low-gradient concrete drains, installed in the benches, carry off water at as slow a flow rate as practical. Thruway engineers acknowledge the added cost of benching and ditching the embankments, but they believe the resulting decrease in erosion will save many times the initial installation costs.

To further reduce maintenance expense, all bridges are equipped with aluminum guardrails. Instead of catchbasins, which have to be bucket cleaned, most bridges are constructed with grillage-covered drains at either end. Intended to protect the lower portions of the structures from drips, the box drains run transversely across the full width of the bridges. Because of the slope of the drain bottom it is expected that each one will be virtually self cleaning. Outside road shoulders are paved with bituminous concrete. The roadway itself is four lanes of reinforced concrete. Malls up to 800 ft wide separate opposing roadways and wherever possible the natural terrain features of the malls have been maintained.

The other section of the New York tollroad to be opened is the New England Thruway. Ribbon cutting ceremonies are set for October 18. This $64 million, 15 mile long superhighway connects with the Connecticut Turnpike at the Byram River, south of Port Chester, N. Y., and runs southward into New York City's Borough of the Bronx.

It is the only section of the Thruway that comes into New York City. It is also the only section of road operated by the Thruway Authority that, for the present at least, will have no direct connection with the Thruway's main line. Its opening will push to 538 the number of miles of road in operation under the Thruway Authority.



BERKSHIRE THRUWAY will be a link to the west for Massachusetts. It's not quite complete, but its eastern 18 miles (solid line) are carrying traffic.

Boundaries Stymie Planning

Urban problems don't stop at the city line. If the boundary of civil authority coincided with community limits, public works could be planned and scheduled on an area-wide basis.

That's what George H. Deming, director of the Conference of Metropolitan Area Problems, told the American Public Works Association last week. But he pointed out, almost nowhere in the U. S. does a single jurisdiction extend over the whole urban community.

Conferees at the association's 64th annual meeting, in Kansas City, Mo., were also told that public agencies have placed too much emphasis on getting cars into downtown areas. It just leads to bigger traffic jams, said W. J. McCarter, general manager of Chicago's Transit Authority. What we need, he said, is overall transportation agencies for metropolitan areas. They would work with all forms of transportation to increase the number of people and decrease the number of vehicles downtown.

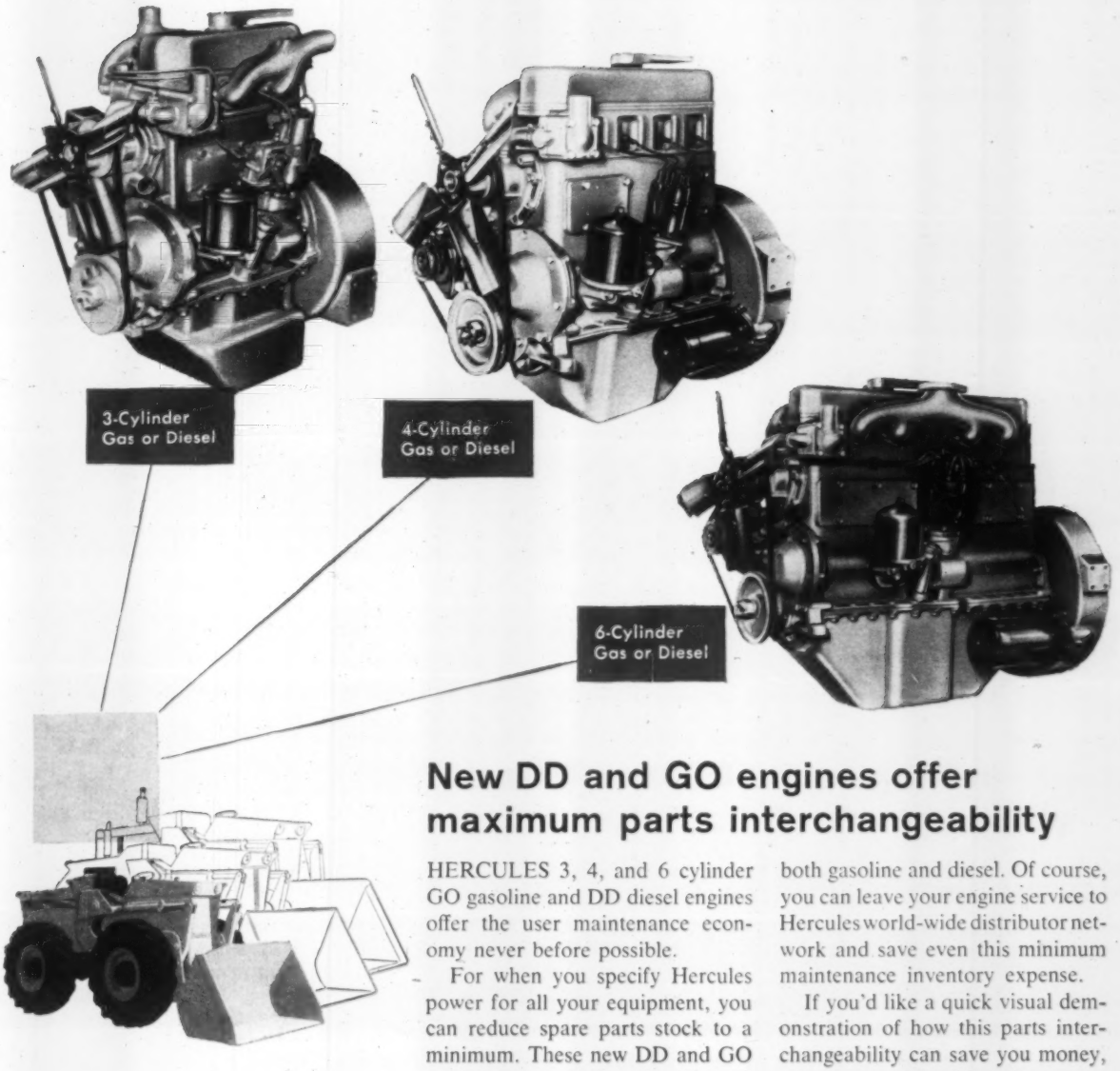
The organization elected its first Canadian president: William D. Hurst, city engineer of Winnipeg, Manitoba.

WILLIAM D. HURST
First Canadian president

He succeeds Sol Ellenson, of Newport News, Va.

The ENGINEERING NEWS-RECORD APWA-administered $1,000 aid-to-education award went to David J. Vargas, civil engineering senior at the University of Michigan. APWA's Nichols Prize was awarded to Arthur D. Caster, principal sewage disposal engineer for the Cincinnati Department of Public Works.

Whatever size loader you buy, you'll save with Hercules power



New DD and GO engines offer maximum parts interchangeability

HERCULES 3, 4, and 6 cylinder GO gasoline and DD diesel engines offer the user maintenance economy never before possible.

For when you specify Hercules power for all your equipment, you can reduce spare parts stock to a minimum. These new DD and GO engines were designed with the highest possible degree of wearing parts interchangeability: one set of spares will service some 18 engines, both gasoline and diesel. Of course, you can leave your engine service to Hercules world-wide distributor network and save even this minimum maintenance inventory expense.

If you'd like a quick visual demonstration of how this parts interchangeability can save you money, ask your nearby Hercules representative for your copy of an illustrated booklet. Or write Hercules Motors Corp., Canton 2, Ohio

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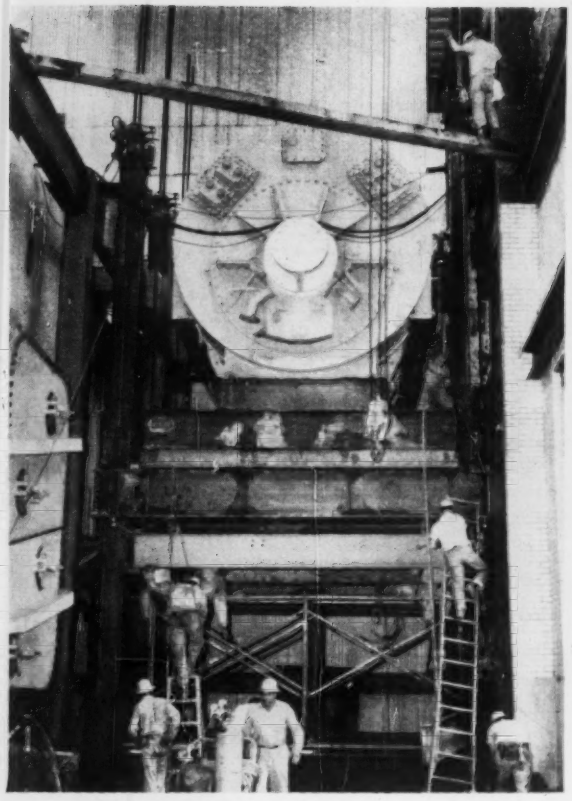
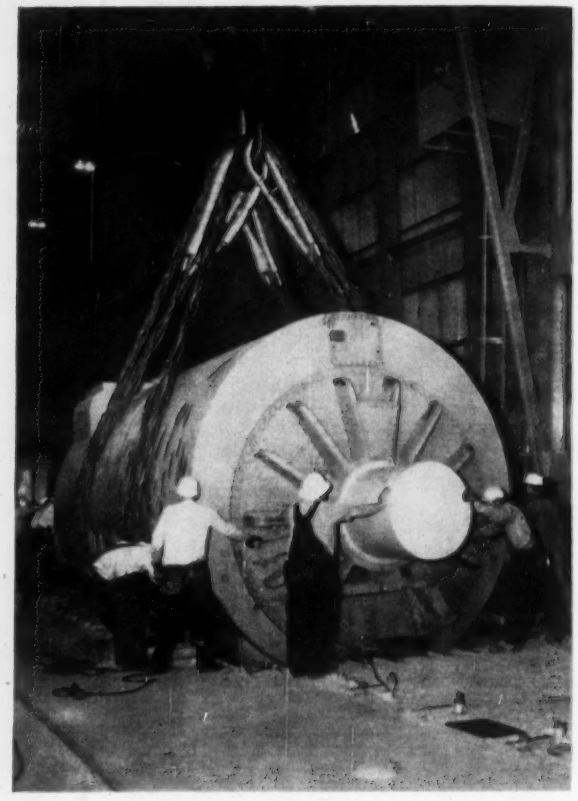




Generators Are Jacked . . . Slung Into Place

LIFT-SLAB JACKS pulled a 205 ton generator up 28 ft to the operating floor of San Antonio's Leon Creek Generating Station.

The 100,000 kw generator arrived on a flat car and was rolled right into the plant. The contractor erected a six column frame around the car and mounted six 50 ton capacity jacks on top to do the job.

Gibbs & Hill, New York City, designed the plant. H. B. Zachry, Inc., San Antonio, is the contractor. The jacking was done by Lift Slab, Inc., San Antonio.

BRAIDED WIRE SLINGS placed a 193 ton generator at the new Cherokee Station of Colorado's Public Service Co.

The two giant slings were of wire ropes, formed by braiding eight 1⅜ in. strands. The slings weighed about 2,200 lb each when completed. Used in a basket hitch to raise the generator, each sling has an ultimate capacity of 829 tons.

Ebasco Services, Inc., New York City, is the builder. The slings were supplied by Colorado Fuel and Iron Corp., Houston.

Hurricane Barriers Cut Losses

Thanks to low tide at 11 hour, the late Hurricane Helene's 135 mph winds didn't test North Carolina's coastal defenses as thoroughly as they might have. But state officials agree the estimated $11 million damage would have been higher except for the first results of North Carolina's four-year-old program of hurricane protection.

Set up after the 1954-55 storms—Hazel, Diane, Connie and Ione—caused statewide destruction totaling $318 million, the program began with a study of means to protect the state from future storms.

The 320 mile strip of offshore sand known as the Outer Banks has received the major share of attention. Sand dunes, groins and seawalls have been built in an effort to restore portions of the banks washed away by the previous storms. The Corps of Engineers and the federal government's Beach Erosion Board are nearing completion of a survey to determine what long-range steps are needed to further strengthen the coast.

Meanwhile, local governments and private citizens have been active. Private property owners have spent $300,000 for a seawall near Morehead City. The town of Carolina Beach spent $66,000 to erect groins along the beach and moved 500,000 cu yd of sand to bolster the barrier.

Federal funds were spent in cleaning up after the last storms. It cost more than $1 million to clear streams of debris left in 22 counties by the previous hurricanes.

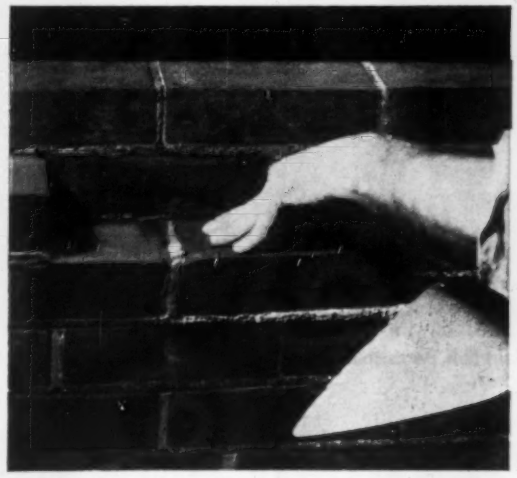
News Briefs . . .

• **Indiana skyscraper**—A $22 million, 26-story Indianapolis-Marion County building is being designed by Allied Architects and Engineers, Indianapolis. Plans for the steel, glass and limestone structure are to be completed this month and bids are to be opened December 15.

• **Aluminum clinic**—A specialized laboratory unit for testing of aluminum window and door products will be opened in Miami. The project is being endorsed by Miami members of the Society of Aluminum Window Engineers. When fully equipped and functioning the laboratory will fill the need for normal and static condition tests.

• **Shopping center**—A $14 million, 48-store shopping center is being constructed in Oklahoma City.

BRIXMENT MORTAR
Is More Plastic



To compare the plasticity of any two mortars, try shoving a brick into place, with a full head joint. The more plastic the mortar, the easier the work. Try this with Brixment mortar!

AND GOOD PLASTICITY
IS THE FIRST REQUIREMENT OF GOOD MORTAR

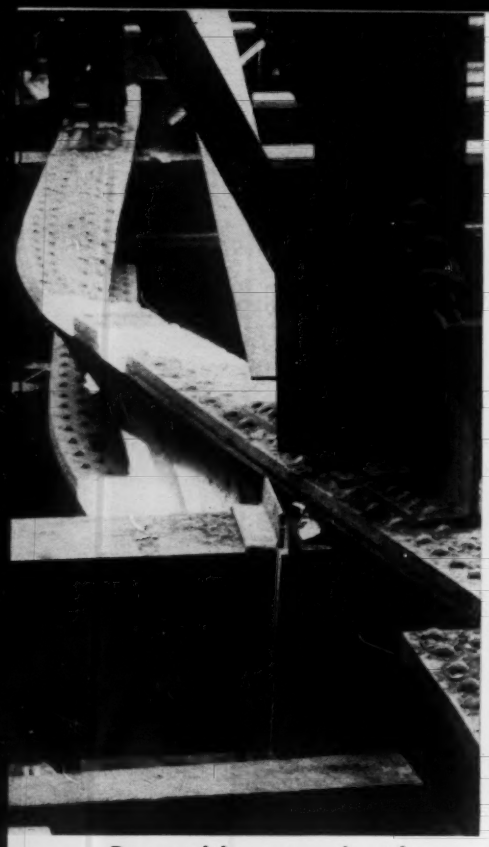
One of the most important characteristics any mortar can possess is *plasticity*. Within certain limits, plasticity is the greatest single factor not only in the *economy* of the brickwork, but also in its strength, its neatness, and its resistance to the passage of water.

One of the outstanding characteristics of Brixment mortar is its unusual plasticity. Because of this plasticity, a bag of Brixment will carry three full cubic feet of damp sand and still be as plastic as 1-2-9 cement and lime mortar.

Brixment mortar's exceptional plasticity makes it easy for the bricklayer to secure neat, economical brickwork, with the brick properly bedded, and the joints well filled.

LOUISVILLE CEMENT COMPANY, LOUISVILLE 2, KENTUCKY

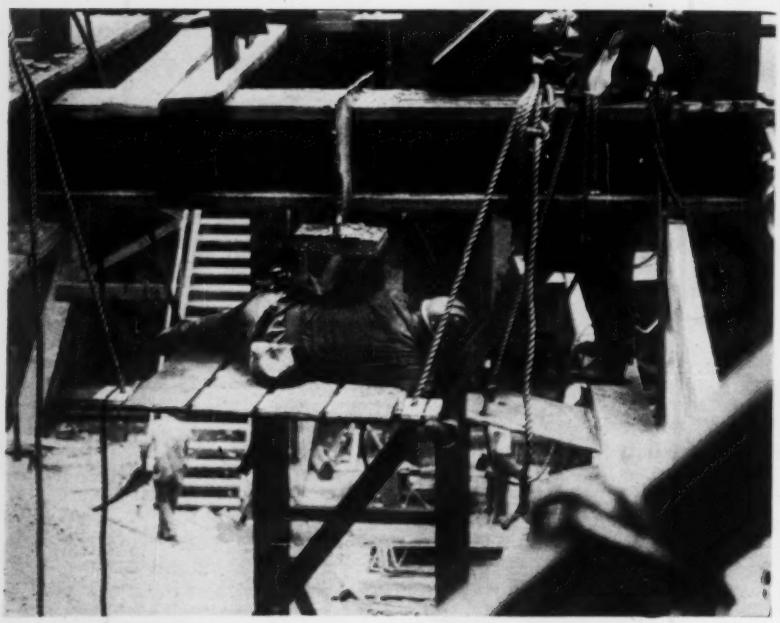
Cement Manufacturers Since 1830



Damaged beam was bent by . . .

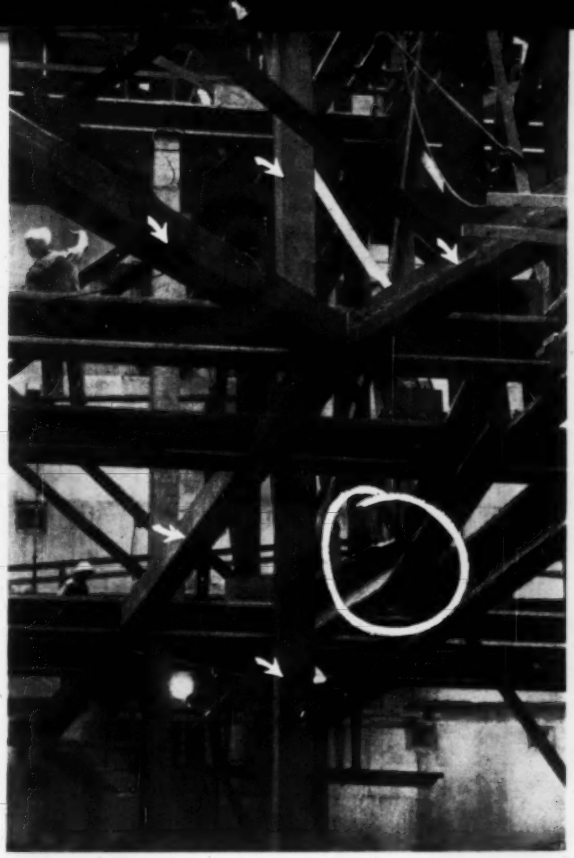
. . . 75 ton crane that fell from trestle 50 ft above.

Replacing a Beam in a Loaded,



. . . Webs left at framing joints. These were . . .

. . . Carefully trimmed to take . . .



Shoring came first to bypass loads in prestressed frame.

Beam was then cut out except for . . .

Prestressed Steel Frame

(Story continues on next page)

. . . The new beam. It was hung in place, then . . .

. . . With dry ice and wedging, it loaded itself.

Dry Ice Prestresses New Beam in Existing Frame

(Story begins on page 30)

Over six tons of dry ice combined with careful planning and construction helped repair the damage caused when a crawler crane toppled into the substructure excavation of Chase Manhattan Bank's headquarters project in downtown New York City. The 36 ft beam was bent 28 in. out of line.

The foundation contractors had excavated to the fifth basement level, 75 ft down, when the accident happened during a night shift. The crane bounced off a heavy beam 50 ft below the street level trestle as it fell to the bottom of the excavation (ENR June 12, p. 21).

The beam was a 24 WF 160 with top and bottom coverplates. It ran across the 170 ft width of the block-long site as part of the permanent building frame. The permanent frame also serves as prestressed bracing for the deep foundation walls during construction of the building's substructure (ENR July 24, p. 34). The damaged beam had been carrying a 440 ton horizontal load.

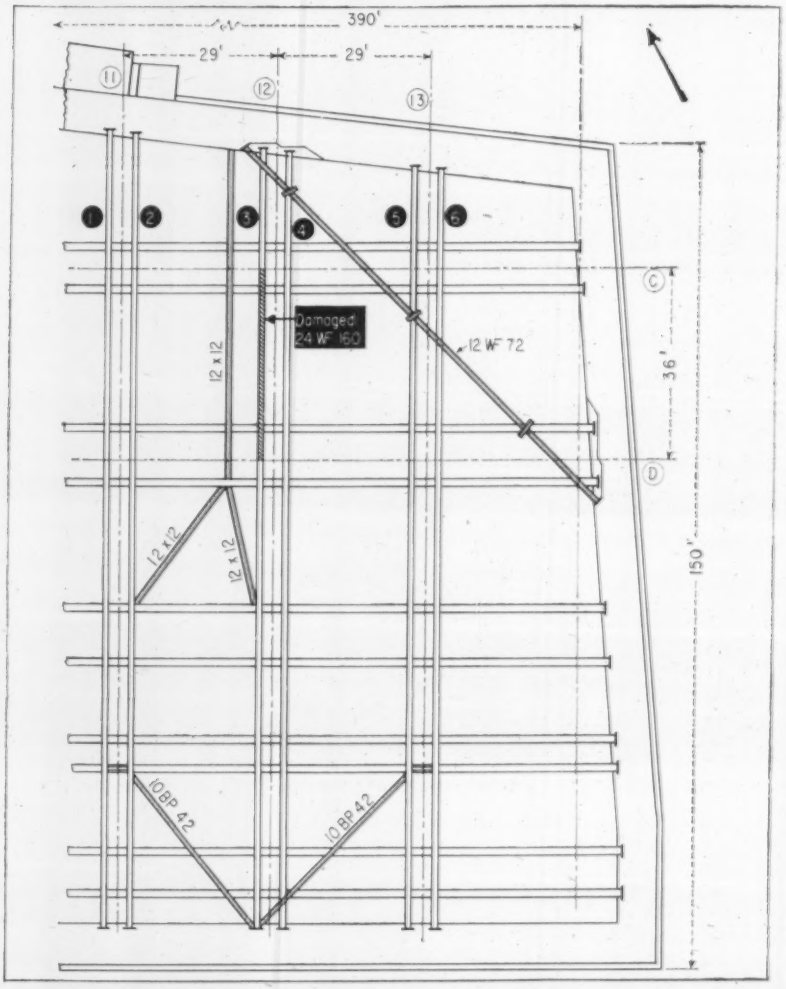
• **The plan**—Repair planning started the morning after the accident. A plan of action was developed by engineers of Moran, Proctor, Mueser & Rutledge, the foundation designers and consultants, working with Weiskopf & Pickworth, the structural engineers. The plan had four steps:

- Replace damaged secondary supports immediately.
- Shore and brace around the badly damaged beam.
- Get the damaged beam out without disturbing the other heavily loaded framing.
- Install a new beam, and restress it without reloading the entire beam line.

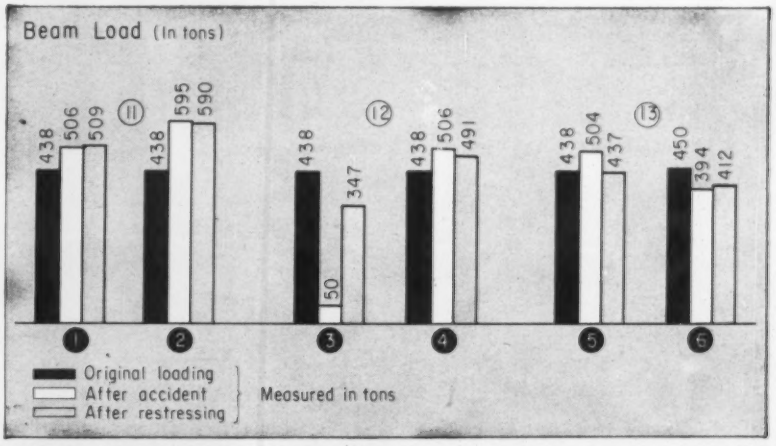
The first task was to replace two warped temporary columns, 10BP42s, located at one end of the bent beam.

Next, erection crews of Bethlehem Steel Co. installed temporary horizontal bracing at the ends of the beam line to stiffen the framing where shifted loads might cause trouble. A long diagonal steel brace was placed at one end, reacting against the lot's end wall. At the other end of the line, the crew installed two diagonal steel braces and connected them to adjacent beams; this relieved the adjacent beams of some of their added load.

Strain gage readings showed there was still some load left in the damaged beam. Dock builders erected 12 x 12 in. timber bracing parallel to the damaged beam. This bracing was designed to absorb the 50 ton residual load released when steel workers removed the damaged beam, and to prevent shifting in the other framing. Prevent-



BRACING DID THREE JOBS by stabilizing framing around the damaged beam, redistributing shifted stresses, and taking up remaining load when damaged beam was removed. The greatest load changes occurred in the six numbered beams.

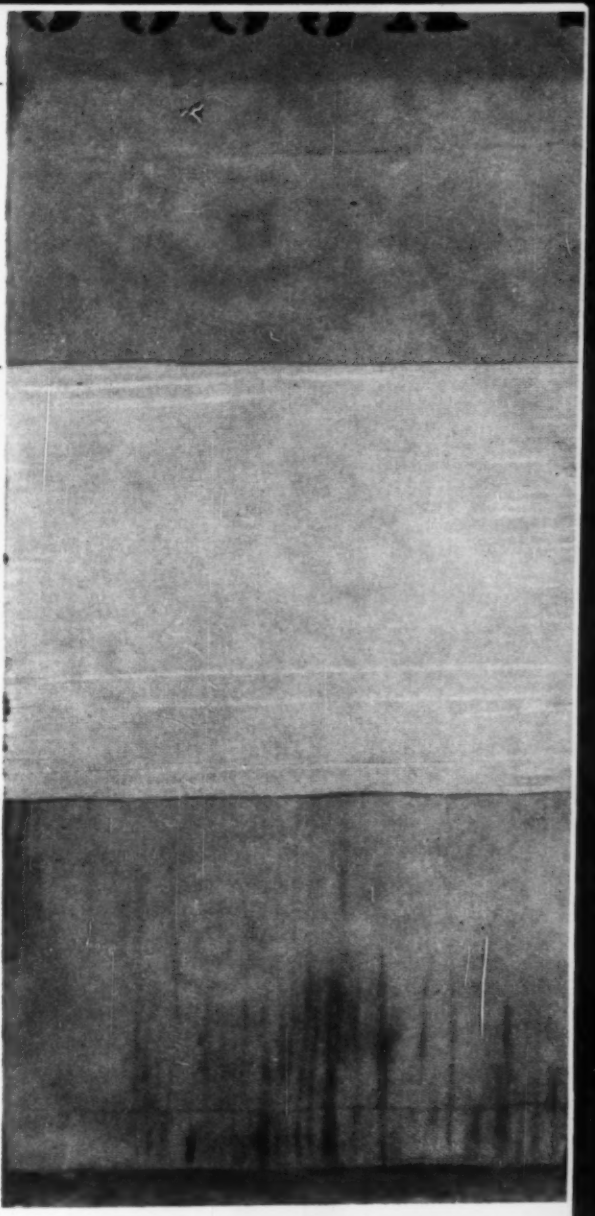


DISTRIBUTION OF LOADS before and after accident, and following restressing, shows how adjacent beams picked up most of the stress.

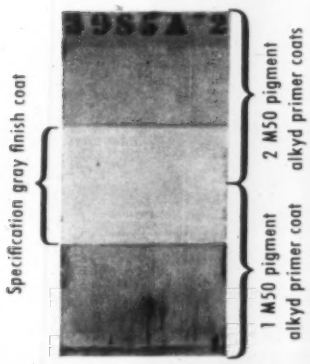
Area shaded from sun by wooden panel holder

After 9 years exposure, fading has barely begun to show in this 3-mil *M50* primer coat. Same type paint made with standard rust inhibiting pigment chalked and showed rusting in less than half this time.

Unshaded area



How test paints shown at right were applied

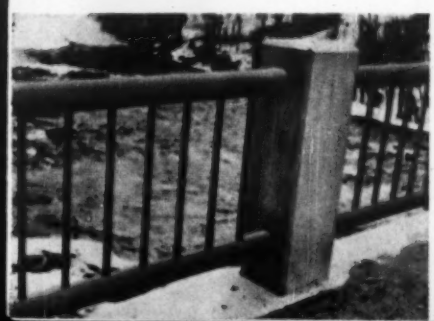


Exposed 9 years 45°S
Each coat 1.5 mils

1.5 mil M50 primer coat is still in place, still actively resisting corrosion after 9 years. Same type paint made with conventional pigment almost completely disappeared in the same period.

Proof M50 pigment Defense in Depth paints deliver lasting weather resistance

Never before such durable metal protection for highway bridges, guard posts, railings, sign posts. And never before such attractive color choices.



Here you see how typical M50 pigment primer coats weather 9 years exposure. The advantages of weather resistance like this in the primer coat of an anti-corrosive paint system cannot be overstressed. Long after weather has worked its way through intermediate and finish coats, primers made with *M50* basic lead silico chromate pigment* still provide excellent weather protection. Rust inhibiting action in the film continues unchecked. Even breaks in top coats traceable to damage or painting mishaps do little harm.

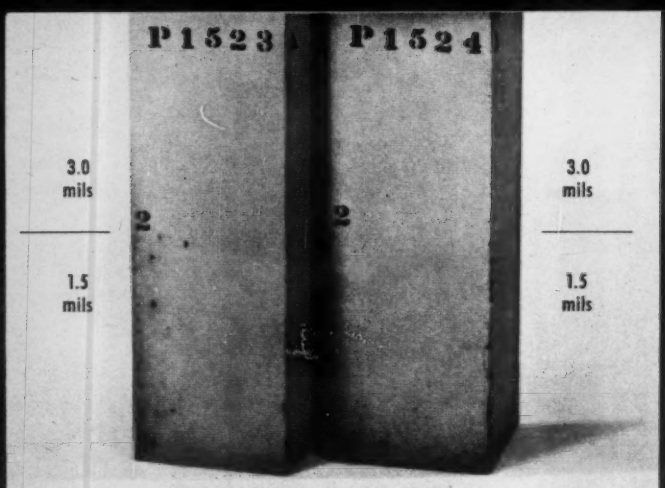
The excellent chalk resistance shown by *M50* pigment primers also pays off handsomely. When steel erection is delayed, repreparation of the steel is rarely needed. On-the-job spot priming is sharply reduced.

On the next page, see how typical *M50 finish* paints perform in severe exposure tests.

*Registered trademark of

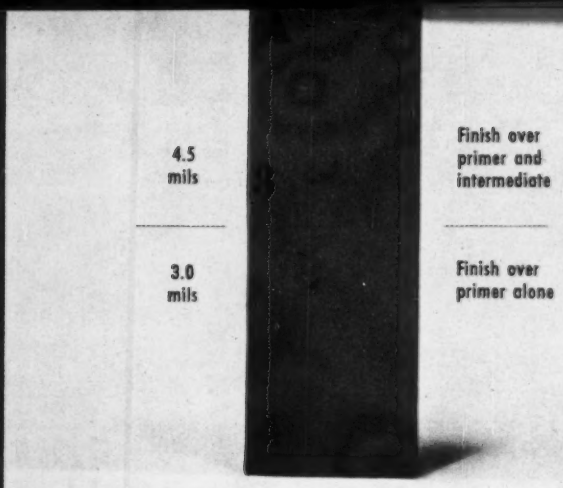
National Lead Company

General Offices: 111 Broadway, New York 6, N.Y.



No visible splotching!

Test angles above show how a typical *M50* pigment finish paint applied directly to steel (no primer or intermediate) withstands 4 years exposure in industrial atmospheres. Left, *M50* pigment finish applied on rusted surface with retained mill scale. Right, same paint applied on clean, sand-blasted surface.



No visible chalking!

This test angle demonstrates the excellent resistance to chalking or fading shown by *M50* pigment Defense in Depth paints. Paint has been exposed 2 years, 45°S in normal atmosphere. The insolubility and stability of *M50* fused lead chromate pigment contributes substantially to this performance.

Here are two performance plusses you can expect from M50 anti-corrosive finish paints exposed to weather

With *M50** pigment Defense in Depth paints, *lasting* weather resistance is obtained in *all* coats . . . not just intermediates and finishes. This is clearly brought out by exposure tests such as the ones shown on this and the preceding page.

Along with lasting 3-deep weather resistance, *M50* pigment anti-corrosive paint systems give you 3-deep rust inhibition and 3-deep color choice. Never before has it been possible to produce specification anti-corrosive paints with comparable performances that could be sold at current market levels.

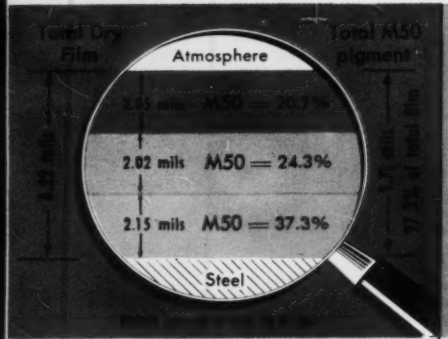
Now, with National Lead's *M50* pigment, most paint makers can make such paints.

National Lead is prepared to help your supplier formulate *M50* pigment paints and also: (1) show you *M50* pigment paint exposure test panels at its Sayville, L. I. Test Station; (2) send you a 24-page descriptive brochure, "Defense in Depth." (Mail coupon below); (3) provide technical aid in test applications; (4) help you develop suitable specifications for paints containing *M50* pigment.

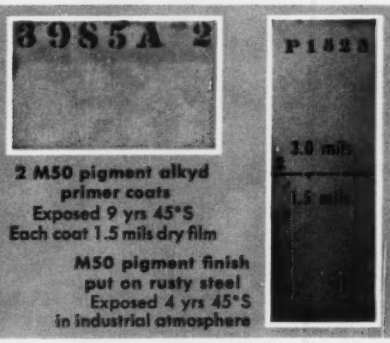
For M50 pigment paints themselves, contact your regular suppliers.

*National Lead Company trademark for a basic lead silico chromate pigment

Why M50 Defense in Depth paints give you metal protection beyond all former concepts



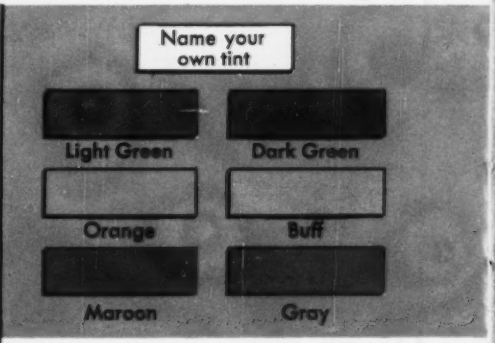
In every coat...rust inhibition! Fused lead chromate is noted for rust-inhibition. The *M50* pigment particle structure permits paint makers to include large proportions of lead chromate in all coats of anti-corrosive systems.



2 M50 pigment alkyd primer coats
Exposed 9 yrs 45°S
Each coat 1.5 mils dry film

M50 pigment finish put on rusty steel
Exposed 4 yrs 45°S in industrial atmosphere

In every coat . . . weather resistance! *M50* pigment is insoluble in water and has the excellent tint retention properties of fused lead chromate. Unlike other rust inhibitors, it actually boosts weather resistance of paints.



In every coat...your choice of colors! *M50* pigment gets along well with most tinting pigments, permits paint makers a wide range of colors...not only in intermediates and finishes but in primer coats as well. Colors stay true.

M50 Defense in Depth

National Lead Company,
111 Broadway, New York 6, N. Y.

Gentlemen: Please send me your 24-page brochure, "Defense in Depth." Include color card of the six *M50* pigment paints you recommend for steel highway structures.

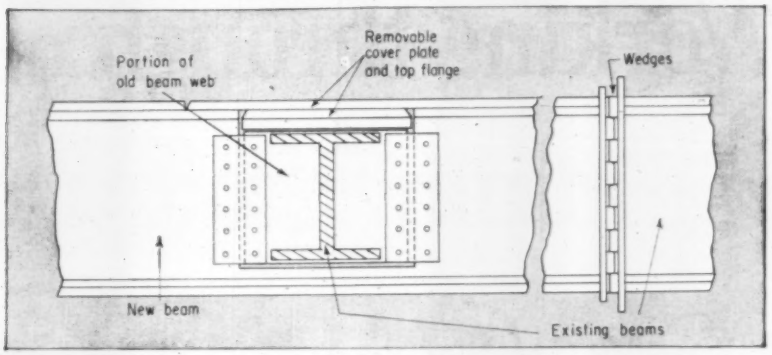
Name_____ Title_____

Firm or Dept._____

Address_____

City_____ State_____

. . . New beam was custom tailored to fit existing framing



ROOM TO MOVE during stressing was an important consideration in design of the new beam. Gap between old and new webs separated it from the other framing.

ing movement in the rest of the prestressed frame was a recurring problem.

Removing the damaged beam required a definite sequence of torch cuts. It was joined a few feet from each end by two girders that carried 660 ton prestress loads the length of the excavation. Bethlehem workers made the first and second cuts just outside the two joints. These cuts removed the comparatively free ends of the damaged beam. Movement caused by release of the remaining 50 ton load occurred outside the main center section of the beam. After the end cuts were made, the main center section of damaged beam was cut without any trouble.

• **New beam**—Designing the replacement beam centered around the question of movement. The cross lot beams and their loads had to be kept separated from the girders and loads running the length of the lot. This separation would prevent movement in the long members while stressing the new beam.

When Bethlehem workmen removed the old beam, they left its web portions where the two girders passed through it. The flanges were cut off and the remaining web was dressed and ground to form what amounted to fish plates located where the new beam would intersect the existing girders. The new beam was tailored with just enough gap at these points to allow for shrinkage during its loading. The top flanges and coverplates were removable to allow pulling the beam into position from below.

The original beam had shop milled ends and butted against the next beams in its line. This system was out for the new beam. It was made with end bearing plates. Matching bearing plates were welded to the beams at either end. This allowed for correct bearing between existing and new beams and for loading the new beam as well.

• **Loading the line**—Restressing the entire beam line with jacks would have been practically impossible. The decision was to let the new beam load itself: Pack it in dry ice, then wedge it and let it do the work as it expanded after the ice was removed.

The new beam was first placed without any connection to the existing webs left from the old beam. The steel crew hung it with chain falls from the framing above. Splice plates on the new beam web were left free to slide along either side of the old webs. This allowed movement in the new beam during loading without affecting the other framing.

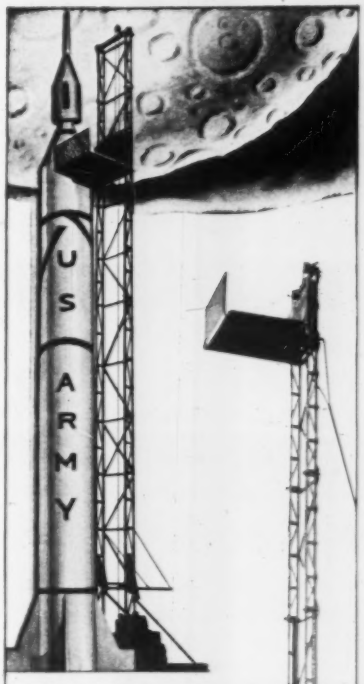
• **Deep freeze**—About six tons of dry ice were packed around the beam in a hung form. Within six hours, the beam shrank ¼ in. The steel crew drove wedges at both ends of the beam; laborers dug out the ice and pulled off the hung form. After 20 hours, the beam returned to normal temperature.

"After the beam warmed up, we were happy to find about 75% of the original load restored," said Mr. Johnston. We would have been satisfied with 50%. The rest of the loads are scattered through the third basement framing."

The last step was making the web and fish plate connections.

Engineer Nicholas W. Koziakin of MPM&R said, "It was just like playing the piano. We were lucky enough to have it come out right on the first try."

Architect for the project is Skidmore, Owings & Merrill. Weiskopf & Pickworth is the structural engineer. Both are New York City firms. Messrs. Johnston and Koziakin of Moran, Proctor, Mueser & Rutledge designed and supervised the beam replacement. The foundation contract with the owner is held by a joint venture of the Foundation Co. of New York City, and George M. Brewster & Son, Inc., and Joseph Miele Construction Co., Inc.; both of New Jersey. Bethlehem Steel Co. is the steel constructor. Turner Construction Co., New York City, is the general contractor.



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"Working through old in new ground...

Says Mr. C. J. Fanning, Pres.
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"You soon see why Transite Pressure Pipe saves time and labor when you're working through old, unmarked utility and service lines," continues Mr. Fanning, one of New England's largest contractors. "These unforeseen obstacles can cause costly slowdowns, but they present fewer problems with Transite. Its flexibility, easy handling and speed of assembly enable our men to work fast even under the most difficult working conditions. And by the same token—your crews really move along when conditions are favorable."

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An important reason is the time it saves . . . the way it helps in tough installations. And just as important, the way it lets your crews stay right behind the excavator when conditions are favorable.

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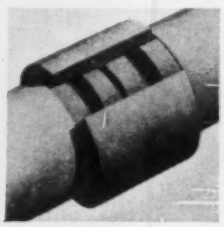
Transite's long (13′), lightweight lengths are easily, quickly handled both in the trench and above ground. Its Ring-Tite® Coupling makes installation still faster. Requires no time-consuming joining methods . . . automatically positions pipe ends to allow for expansion, maintains and holds them positively during assembly.

The result is contractor peace of mind—a tight seal at every coupling in the line!

You'll want a copy of *TR-62A*, convenient, pocket-size Installation Guide and *TR-160A*, informative folder on Transite Pressure Pipe. Write for your copies today. Address Johns-Manville, Box 14 EN, New York 16, New York.



Sectional view of the Ring-Tite Coupling shows how rings are compressed and locked in grooves to provide a tight, lasting seal.

Photo by Tony Petri Studio, Providence, R.I.

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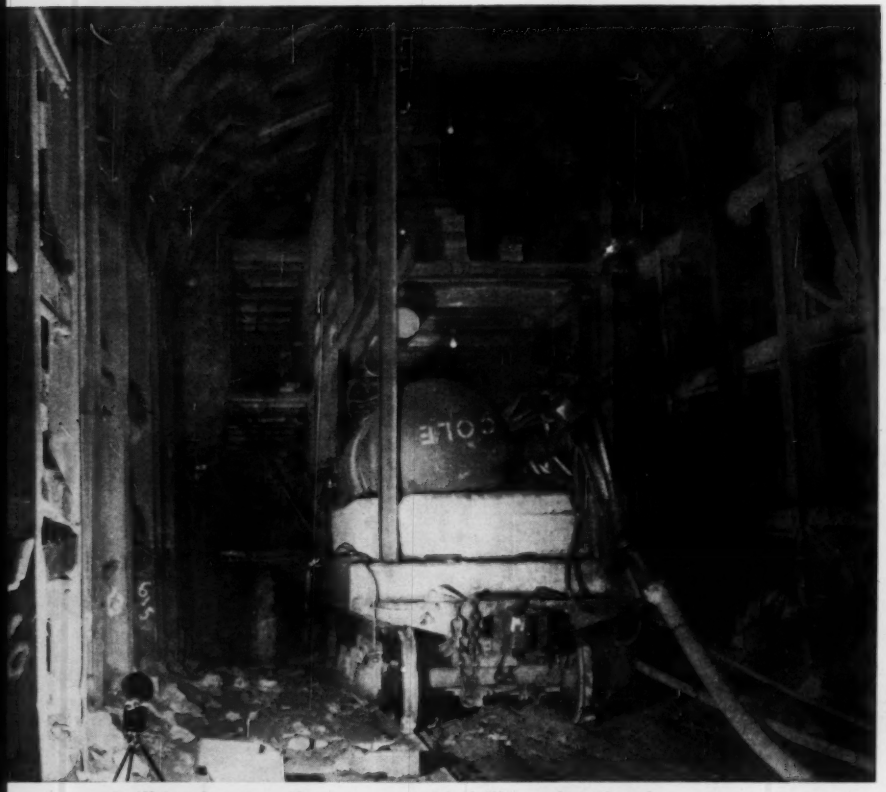
unmarked service lines...or Transite Pipe saves us time!"

Easily handled . . . quickly assembled with the Ring-Tite Coupling . . . Transite speeds and simplifies most any installation!

Crews of Fanning & Doorley Construction Co. installing 8" Transite line in Providence, R.I., water supply system.

Three-car muck train gets load (left), then winch-powered slusher distributes muck evenly through train.

Big Muck

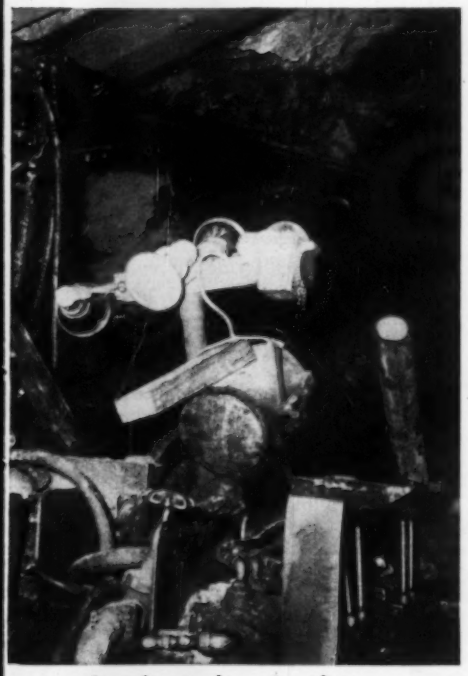


Drill jumbo on rail car mounts 12 drills on four levels.

Drill controls are 20 ft from tunnel

Frame for slusher blade is mounted above muck car hopper.

Cars Cut Tunnel Costs



face for workmen's safety.

Huge muck cars running on standard gage rails are being used on an $8.5 million California railroad tunneling project. Each train of three interconnected cars will handle about 150 cu yd of excavated rock. This method saves time and manpower.

The drilling jumbo and the equipment it mounts are also big. The drills bore 12 ft holes with no drill steel changes.

The job is construction of two tunnels: one is 8,830 ft long, the other 4,410 ft. It's part of the relocation of the Western Pacific Railroad for California's Feather River Project. The excavated tunnel section is about 30 ft high and 21 ft wide. After concrete lining, this provides a single track tunnel 18 ft wide, a 9 ft radius circular roof with 24 ft between arch and rail top.

The job equipment was developed by the contractor, Peter Kiewit Sons' Co., Omaha, to meet the special needs of the work. On this job fast progress is not a critical factor. The contract allows ample time—500 working days. Besides, other elements of the railroad relocation are yet to be put to bids. So there is no great need to complete the two tunnels quickly. Thus, the contractor's aim is to excavate the tunnels for as little cost as possible (bid item on tunnel excavation was $12 a cu yd). Emphasis has been placed on well planned equipment taking advantage of the large size of the bore.

Complicating the construction is a difficult site problem. The two tunnels are separated by a narrow canyon with only 260 ft between adjacent portals. Thus, placing of repair shop, compressor house, change room, switching tracks and muck dump access took careful planning.

On the other hand, the closeness of the tunnels permits the contractor to use the same drill jumbo and mucking equipment in each tunnel. While a drill cycle is under way in one, a muck cycle can be carried out in the other—at least until the shorter tunnel is holed through. And it led to construction of each tunnel from only one heading with all equipment concentrated in between.

After the shorter tunnel is holed through, the excavation will boil down to a one-face operation. Progress on two headings is about 250 ft a week on a five-day three-shift basis. When only one heading is used, weekly progress will be about cut in half.

• **How it works**—The unique mucking system requires fewer workmen than conventional methods. And the mucking cycle is faster because time spent in car passing is reduced to a minimum.

The interconnected huge railcar method was developed for mining purposes by Anaconda Copper and is used in mines in Chile. Primarily responsible for its development is Ed Bourcherdt, chief research engineer for Anaconda, with headquarters in New York City.

A team of Kiewit engineers made a special trip to Chile to see the rail car method in actual operation before adopting it for the Feather River job.

The muck train consists of three interconnected cars mounted on standard railroad gear. The cars are each about 50 ft long, and they are limited to 8½ ft in width to permit passing inside the tunnel. They have high built up sides to provide for a capacity of 50 cu yd each.

A standard tractor type mucker hoists the tunnel rock into a hopper at one end of the muck train. The rock is moved into the cars by a slusher or scraper blade. The slusher is powered by a 100 hp electric motor mounted on the opposite end of the train.

The motor gets its current from a direct coupled generator on the 25 ton, 160 hp locomotive that hauls the train.

(*Story continued page* 40)

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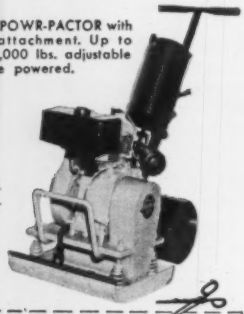

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. . . Rail-mounted jumbo has cantilevered platforms

The slusher operates on a set of rails mounted about mid-height of the cars. By riding on these rails it scrapes the rock back into the cars at a rate of about 5 cu yd a pass. In operation, the space below the rails is filled first, starting at the mucker end of the train. Then the space above the rails is filled, starting at the other end and working back. The slusher operator is stationed on the muck car in a protective cage near the hopper end.

Two trains are being used on the prject. With about 400 cu yd of rock developed, about 2½ trainloads are required to muck out each round. Thus, the only car change time required is brief. Twice each cycle one train is pulled back from the heading to a passing track and the other train is pushed to the heading.

For discharging muck the cars have hydraulically operated gates along one side at the bottom. The rock is moved from alongside the cars by bulldozer. This is done instead of dumping directly down the side of a muck pile as it cuts the number of track changes.

• **Drill jumbo**—The drill jumbo is also mounted on a standard 44 ft long railcar. It mounts 12 drills on four levels —eleven 3½ in. drifters and one 6 in. drifter for a burn cut. The drilling platforms cantilever out from the front of the jumbo some 20 ft. The jumbo is counterweighted on the opposite end by an air receiver and a concrete mass.

All drill equipment is mounted on hydraulic jibs. In addition to normal movements the drills have 5 ft of horizontal movement, hydraulically powered, to get the equipment close to the face of the tunnel. This is necessary to drill a full 12 ft depth with one setting of drill steel. To handle the full depth, the drills are heavier than usual. All drill controls are about 20 ft back from the face, thus protecting the workmen from possible injury by rockfalls.

Pressure for all hydraulic equipment on the drill jumbo is developed by air-driven pumps. The jumbo operation requires about 4,000 cfm of compressed air.

Each round involves about 120 holes centered around a main 6 in. burn cut. The other holes are 1¾ or 1⅝ in.

The powder charge is a combination of 40 to 60% of semigel dynamite detonated by a combination of millisecond and standard delays. Powder use averages about 3 lb per cu yd of muck removed.

Both tunnels are supported by 8 in. WF steel ribs spaced on 6 ft centers. A special car for handling these steel ribs was developed by the contractor. It includes a stiffleg derrick powered by three air tuggers rated at 2,000 lb—one for swing, one for boom and one for hoist. The steel car also transports the 36 in. ventilation pipe.

The Western Pacific tunnel construction is a project of the California Department of Water Resources, Harvey O. Banks, director. Walter G. Schulz is chief engineer of the division of design and construction.

John W. Alltucker is project manager for Peter Kiewit. Paul Eller is project superintendent and Frank McLean is project engineer.

After the Tunnels, A Major Dam

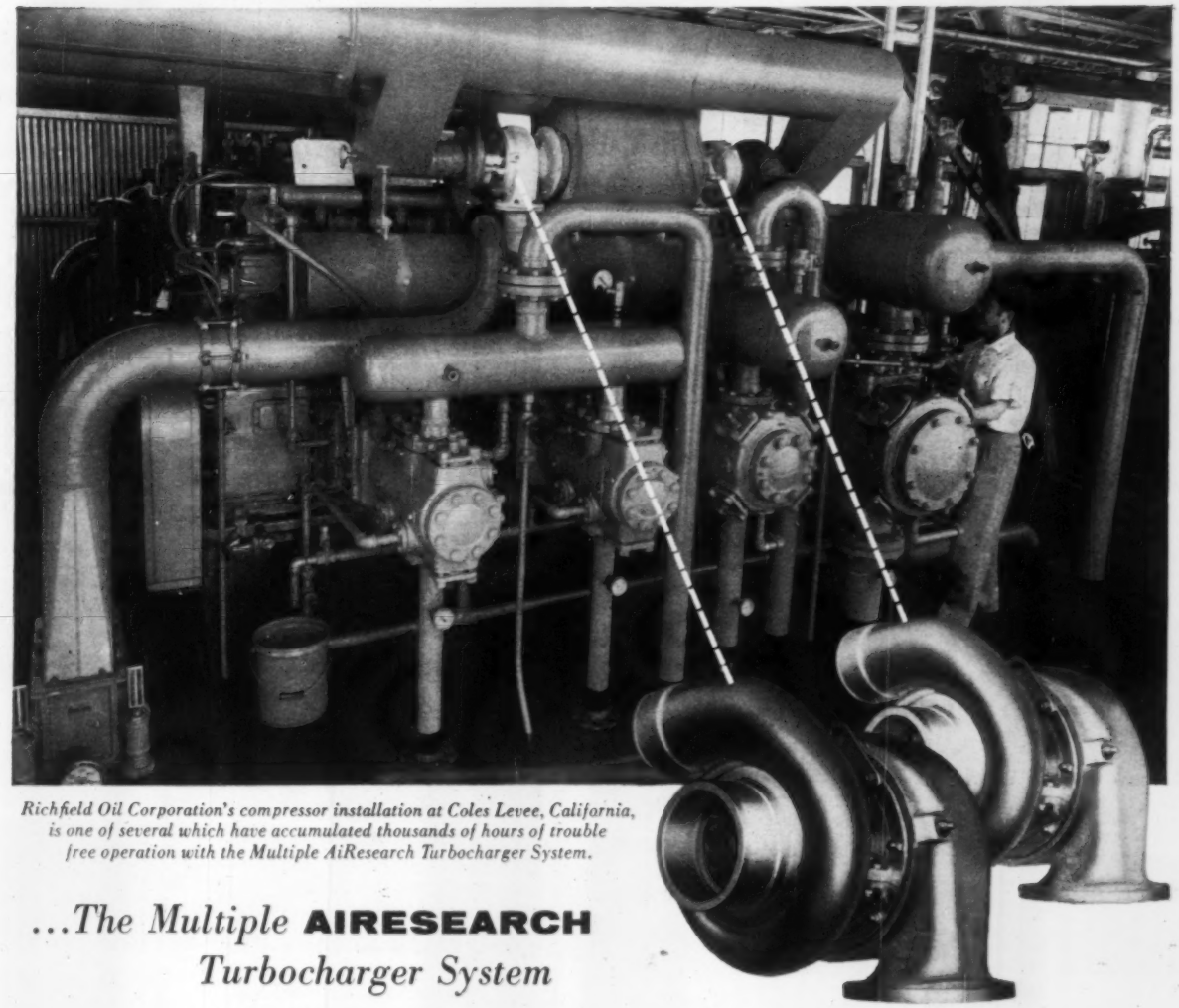
Award of the contract for construction of the two Western Pacific tunnels marked the start of construction of California's Feather River Project. It was the initial venture in the construction field of a new state agency—California Department of Water Resources.

The tunnel construction takes on added significance since it is preliminary to building Oroville Dam, which will be one of the greatest dam building jobs in this era. It will be more than 700 ft high and more than a mile long. Studies to determine the type of dam design are nearing completion. Under consideration are concrete gravity, embankment and three multiple arch and/or buttress designs.

The present construction program, including the tunnels and three other contracts, is financed by a $25 million appropriation from the 1957 state legislature. Several additional contracts are needed to complete the work of relocating the railroad and the state highway out of the narrow Feather River Canyon. But the 1958 session of the legislature got tangled up over water rights and didn't appropriate more construction funds. This will delay the start of construction. And, in fact, the present construction will not be utilized until subsequent contracts are awarded and completed.

In addition to the tunnel contract, a contract for $7.3 million has been awarded to McCammon-Wunderlich, East Palo Alto, Calif., and Wunderlich Contracting Co., Omaha, for grading 2.6 miles of railroad roadbed and 13.2 miles of highway. A $1.5 million contract for a spectacular reinforced concrete arch railroad bridge was awarded to Pacific Bridge Co., Alameda, Calif. And the final contract is for a steel railroad bridge in Oroville for $1.2 million. The contractor is John C. Gist, Florin, Calif.

POWER BOOSTING RICHFIELD'S 2-CYCLE GAS COMPRESSORS



Richfield Oil Corporation's compressor installation at Coles Levee, California, is one of several which have accumulated thousands of hours of trouble free operation with the Multiple AiResearch Turbocharger System.

...*The Multiple* **AIRESEARCH** *Turbocharger System*

has helped solve the Richfield Oil Corporation's need for more power to meet increased demands at its compressor stations. Turbocharging the 2-cycle natural gas engines with the Multiple AiResearch Turbocharger System proved to be an economical and quick method for boosting power.

The turbocharger installation is simple and clean. Two production-type AiResearch turbochargers are mounted directly on the exhaust manifold. The compressed air is directed to the engine intake through an AiResearch intercooler. This increases engine output from 300 H.P. to 375 H.P.

AiResearch is a leader in the development and production of air-cooled turbochargers and turbocharger controls for all major diesel engine applications.

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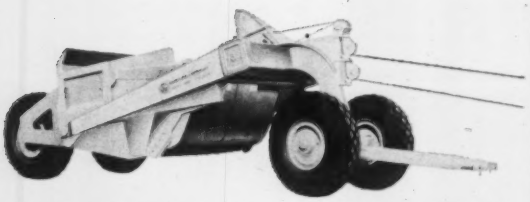


MODEL CWT-8

8.0 cu. yds. STRUCK
10.5 cu. yds. HEAPED

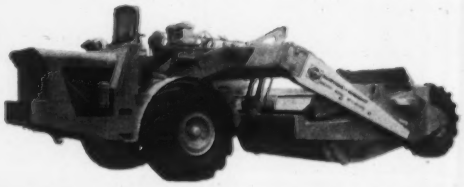
AVAILABLE IN 10.0 and 13.5 CU. YDS.

MODEL CW-27

7.0 cu. yds. STRUCK
10.0 cu. yds. HEAPED

MODEL CWT-15

15.0 cu. yds. STRUCK
21.0 cu. yds. HEAPED



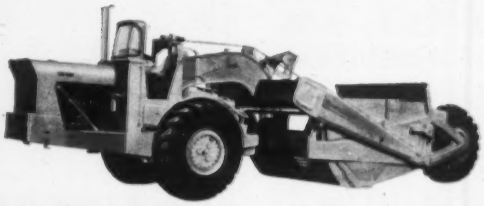
MODEL CW-215

15.0 cu. yds. STRUCK
21.0 cu. yds. HEAPED

INTERCHANGEABLE WITH MODEL CWD-214 REAR DUMP UNIT

MODEL CWT-20

20.0 cu. yds. STRUCK
27.0 cu. yds. HEAPED



MODEL CW-220

20.0 cu. yds. STRUCK
27.0 cu. yds. HEAPED

INTERCHANGEABLE WITH MODEL CWD-221 REAR DUMP UNIT

MODEL CWT-26

26.0 cu. yds. STRUCK
33.0 cu. yds. HEAPED

MODEL CW-226

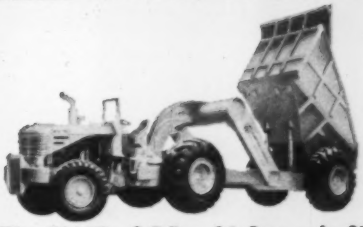
26.0 cu. yds. STRUCK
36.0 cu. yds. HEAPED

INTERCHANGEABLE WITH MODEL CWD-221 REAR DUMP UNIT

MODEL CW-320

INTERCHANGEABLE WITH MODEL CWD-321 REAR DUMP UNIT

20.0 cu. yds. STRUCK
27.0 cu. yds. HEAPED



MODEL CWD-321

INTERCHANGEABLE WITH MODEL CW-320 SCRAPER UNIT

21.0 cu. yds. STRUCK
31.0 cu. yds. HEAPED
35-TON LOAD CAPACITY

A SCRAPER FOR EVERY EARTHMOVING JOB...

CURTISS-WRIGHT

CONSTRUCTION MACHINERY

Curtiss-Wright Construction Machinery offers the most extensive scraper line in the industry! These rugged, dependable high speed machines — produced at South Bend — incorporate design features that give contractors the versatility and performance that pays off in lower costs-per-yard and bigger profits on any earthmoving job.

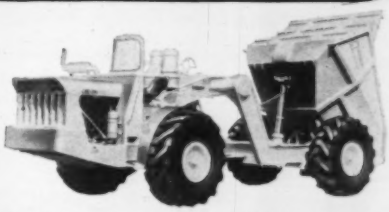
And supporting performance in the field is the nationwide network of Curtiss-Wright distributors with a staff of factory-trained service personnel and extensive parts stocks. Factory parts depots located strategically throughout the country cut downtime on major overhauls too.

For scraper performance that means bigger earth moving profits — see your Curtiss-Wright Construction Machinery distributor today.

SOUTH BEND DIVISION
CURTISS-WRIGHT CORPORATION
SOUTH BEND, INDIANA

MODEL CWT-30

30.0 cu. yds. STRUCK
39.0 cu. yds. HEAPED



MODEL CWD-214

INTERCHANGEABLE WITH MODEL CW-215 SCRAPER UNIT

14.0 cu. yds. STRUCK
21.0 cu. yds. HEAPED
25-TON LOAD CAPACITY

10 stories up at 8 below

Erection of USS AmBridge Steel Joists continued through Pittsburgh's coldest winter

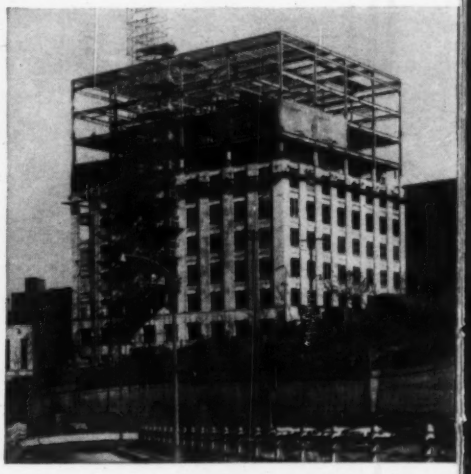
This picture was made on one of the coldest days in Pittsburgh last winter. It shows steel joists that will support the roof of Duquesne University's new 10-story steel-frame Hall of Law and Business building overlooking downtown Pittsburgh.

While most outside construction work in the Pittsburgh area came to a dead stop during the cold snap, *the placing of steel joists* went on as usual.

USS*AmBridge Steel Joists—standard and long-span—provide rigid, economical and lightweight construction suitable for any type of roof, ceiling and floor. The under-slung and open-web design provides for maximum head room and allows passage of pipes, ducts and conduits in any direction. Their ease and simplicity of erection cuts installation time, enabling you to get your structure under cover sooner. Once they have been erected and properly bridged, they immediately furnish a safe working platform for other trades.

In addition to their use in the 10-story classroom building, AmBridge* Steel Joists were also used to support the roof and stage floor of the Auditorium Annex. American Bridge also fabricated the steel frame for these structures. In all, 1,131 tons of steelwork was supplied for this job.

If you would like to know more about the time- and money-saving advantages of USS AmBridge Steel Joists, ask for free copy of our 40-page catalog containing complete design information for spans up to 120 ft.



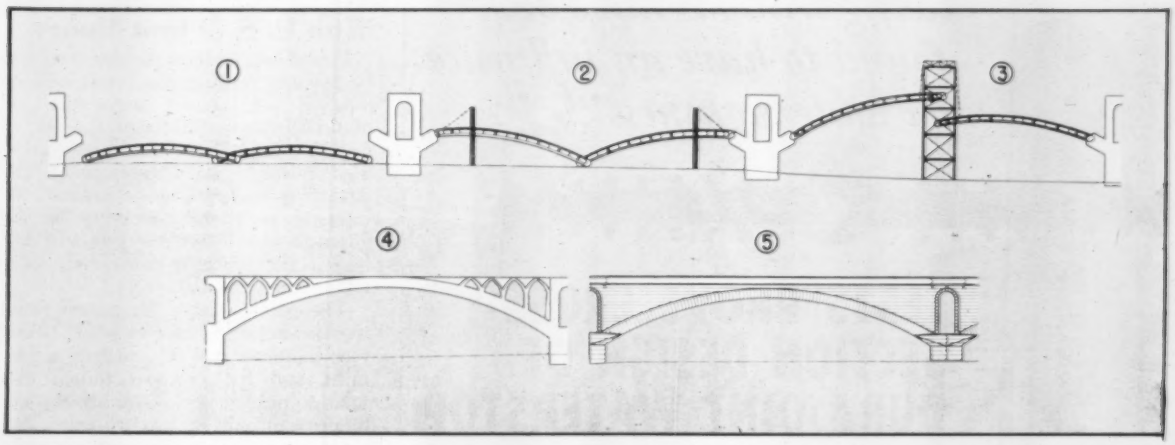
Duquesne University Law and Business Building, Pittsburgh, Pa.
Designed by William York Cocken, Architect, Pittsburgh, Pa. ▶

*Trademarks

American Bridge Division of USS United States Steel

General Offices: 525 William Penn Place, Pittsburgh, Pa. Contracting Offices in: Ambridge · Atlanta · Baltimore · Birmingham · Boston · Chicago Cincinnati · Cleveland · Dallas · Denver · Detroit · Elmira · Gary · Houston · Los Angeles · Memphis · Minneapolis · New York · Orange, Texas Philadelphia · Pittsburgh · Portland, Ore. · Roanoke · St. Louis · San Francisco · Trenton · United States Steel Export Company, New York

STEEL JOIST INSTITUTE MEMBER



BRIDGE IS ASSEMBLED by laying precast concrete arch halves between piers (1), raising and pinning far ends (2), lifting and connecting center ends (3), building vaults to roadway level (4), putting in finish work and roadway (5).

Spain Saves Some Bridge Money

A construction technique is responsible for Spain's most economical concrete bridge. The Merida Bridge, spanning the Guadalquiver River, was built at a cost of $13.50 per sq ft. The construction method used saved the Spanish government approximately $120,000 on the $1 million structure.

The bridge is 1,560 ft long and 63 ft wide. Its six center spans each measure 217 ft and the two end spans slightly less. The heart of a span is two reinforced concrete arches—one to each side of the width of the bridge. Three longitudinal members connected by diaphragms and further braced with tie-rods comprise an arch.

The money-saving technique was to cast the arches on the ground in forms that could be used for each successive span. This saved costly in-place wood forms and falsework. Each arch was cast in two sections.

After the form was stripped, one end of each arch half was raised and joined to its pylon or pier. A movable steel tower set halfway between pylons then raised the free center ends of the arch section.

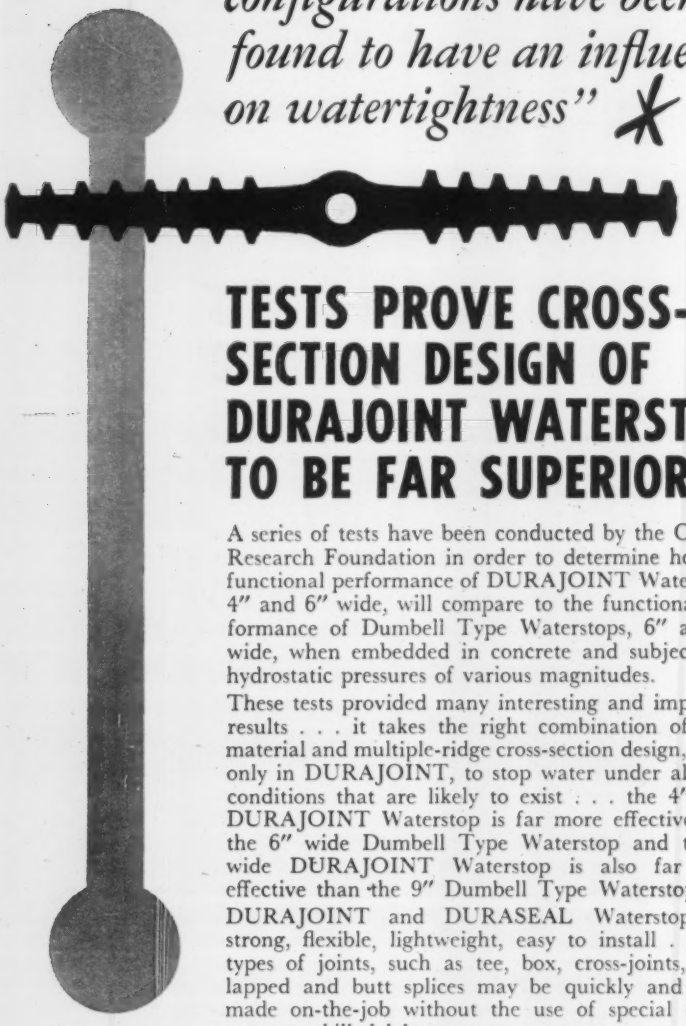
When the halves met, they were joined to form a continuous member. The remaining concrete work—building vaults up to roadway level and the roadway itself—was done in place after the second arch for a span was set in.

The bridge was built for the Ministry of Public Works and Office of Bridges and Structures. The contractor, Cimentaciones y Obras, took 20 months for the job. Engineer Carlos Fernandez Casado devised the economical building method.

PORTABLE STEEL TOWER set on dry riverbed positions the four arch sections that make up one of eight bridge spans.

THREE-MEMBER ARCH sections were cast in forms on the ground, eliminating costly in-place forms and falsework.

"Cross-Sectional configurations have been found to have an influence on watertightness" *



TESTS PROVE CROSS-SECTION DESIGN OF DURAJOINT WATERSTOP TO BE FAR SUPERIOR!

A series of tests have been conducted by the Ontario Research Foundation in order to determine how the functional performance of DURAJOINT Waterstops, 4" and 6" wide, will compare to the functional performance of Dumbell Type Waterstops, 6" and 9" wide, when embedded in concrete and subjected to hydrostatic pressures of various magnitudes.

These tests provided many interesting and important results . . . it takes the right combination of PVC material and multiple-ridge cross-section design, found only in DURAJOINT, to stop water under all joint conditions that are likely to exist . . . the 4" wide DURAJOINT Waterstop is far more effective than the 6" wide Dumbell Type Waterstop and the 6" wide DURAJOINT Waterstop is also far more effective than the 9" Dumbell Type Waterstop.

DURAJOINT and DURASEAL Waterstops are strong, flexible, lightweight, easy to install . . . all types of joints, such as tee, box, cross-joints, overlapped and butt splices may be quickly and easily made on-the-job without the use of special equipment or skilled labor.

Be sure to investigate these interesting results yourself . . . just mail the coupon (below) today, for your free copy of Technical Report No. 4 that contains complete technical data, as to how the performances of waterstops compare, plus actual copies of the test reports. If you are interested in watertight waterstops, this report should prove to be one of the most interesting technical manuals you've ever read.

* Journal of American Concrete Institute, Discussion 52-7, V. 28, No. 6, Dec. 1956, Part II, Proceedings V. 52, Page 1151

DURAJOINT TECHNICAL INFORMATION *Center*
121 HILL AVENUE • AURORA, ILLINOIS

Gentlemen: Dept. 16

- ☐ Please send, without obligation, my free copy of Technical Report No. 4.
- ☐ DURAJOINT Catalog No. 457.
- ☐ Have representative call.

NAME_____
FIRM_____
ADDRESS_____
CITY_____ STATE_____

Lebanon Will Rebuild With U. S. Wheat Money

Public works in Lebanon damaged by sabotage during the revolt will be repaired and rebuilt with the aid of funds obtained through the sale of 65,000 tons of U. S. wheat presented as a gift to the Lebanese government. The damage so far runs from $6 million (the estimate for public property in the government-held territory) to $12 million if the probable damage in rebel-held territory is included.

The wheat, which has started to arrive in Beirut at the rate of 10,000 tons a month, will be sold to the flour mills, and the proceeds turned over to the public works ministry. The money can only be used to pay wages, however, so that only those projects for which materials and equipment are available can be undertaken immediately.

It is estimated that the wheat sale fund will amount to about $5 million. Except for $700 million earmarked to compensate victims of the recent disturbances, the entire fund will be used to pay wages on public works construction. The fund will be administered jointly by the Lebanese government and officials of the U. S. Operations Mission, the Point Four organization.

Damage to public works so far verified, includes $3.5 million to hydro power installations, $1.5 million to public buildings, roads and bridges, $300,000 to railroads and $100,000 to waterworks.

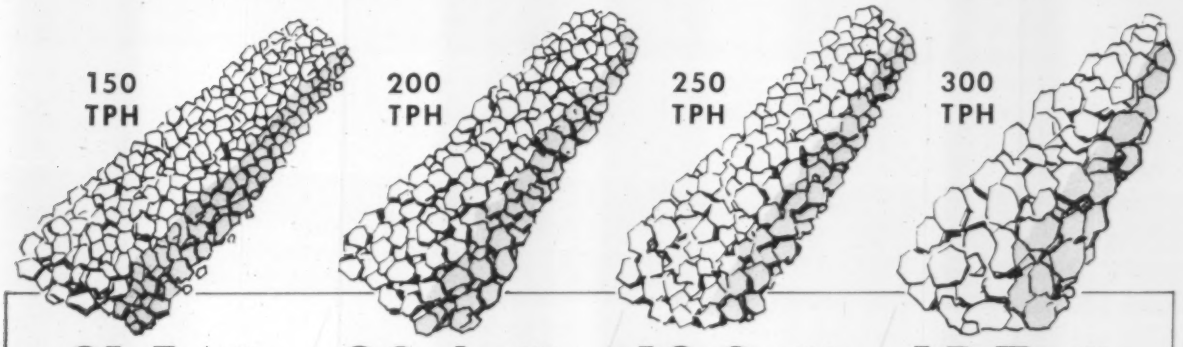
First Contract Award Starts $182 Million Canadian Dam

First steps in construction of the $182 million South Saskatchewan River Dam, in west-central Saskatchewan, have been initiated with award of a contract for access roads. Evans Construction Co., Ltd., of Saskatoon, Sask., was lowest bidder—$172,469 for a 12 mile road.

More bids will be called for soon for rock fill, construction of bridge abutments, piers and steel superstructure. Some $4.5 million have been allotted by the Canadian government this year for this purpose. The established financial agreement, is that province will pay $110 million and the federal government will contribute $72 million.

Most of the bids for the dam work will be asked in early spring of 1959, according to Gordon MacKenzie, director of the Prairie Farm Rehabilitation Administration, which is the federal reclamation agency in charge of construction.

How do the prices you pay for subbase materials compare with these?



31.5¢ PER TON | **23.6¢ PER TON** | **18.8¢ PER TON** | **15.7¢ PER TON**

THESE ARE COSTS BASED ON PREPARATOR IN-PLACE PRODUCTION

In-place production of subbase materials from windrowed bank-run or native over-size materials by the BROS Preparator is producing outstanding cost savings in many parts of the country and the world. The costs per ton shown here are based on conservative averages; compare your present material costs with them. The Preparator can make sizeable cost savings for you, too.

Cost of BROS Preparator, amortized over 3 year period, averaging 1,000 hours production per season, and including fuel, changing hammers (but not hammer cost) and regular maintenance.....$ 9.16 per hour
Tow tractor or grader operating cost.. 8.40 per hour
Set of BROS ALLOY hammers(22), av. production per set, 16 hours..... 29.70 per hour
Total hourly operating costs.....$47.26 per hour
Cost at 150 tph production rate....31.5 cents per ton
Cost at 200 tph production rate....23.6 cents per ton
Cost at 250 tph production rate....18.8 cents per ton
Cost at 300 tph production rate....15.7 cents per ton

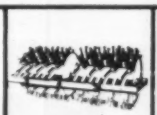
Production rates will vary with the type of materials and the sizes required. Production exceeding 300 tph has been very frequent. Hammer wear also varies with type of material; with but several exceptions, wear has averaged 16 or more hours production on every job. Material reduced from native over-size has sharp friction angles which contribute to resistance to displacement under traffic loads.

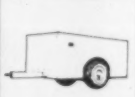
The Preparator is a tough, rugged machine, reducing all types of materials from limestone to blasted lava rock to acceptable subbase gradations. Your nearest BROS Dealer has the latest information on the Preparator; see him this week.

BROS **BROS *Incorporated***
ROAD MACHINERY DIVISION

1057 TENTH AVE. S.E.
MINNEAPOLIS 14, MINN.

Write today for the full report on the Ohio tests and for complete new literature describing the new BROS SP-730 pneumatic roller. It's free of cost or obligation!

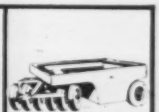

SHEEPSFOOT TAMPERS


ROLL-O-PACTOR

BITUMINOUS CIRCULATOR

VIBRA-PACTOR

9-TON SELF-PROPELLED ROLLER


9 AND 13-TON ROLLERS

Preston Ball, left, chief of Martin reproduction department, and Parker Daggett, management engineer, compare with an original drawing the superb quality of a reduced-size copy run off from an offset paper master prepared by xerography. Original drawing was first microfilmed, then "blown back" by XeroX® Copyflo® 11 continuous printer onto a paper master for runoff on a duplicator.

thanks to *automatic* xerography...

MARTIN BALTIMORE saves $85,000 yearly

A XeroX® Copyflo® 11 continuous printer, enlarging disposable microfilm onto a continuous roll of offset paper masters, is saving Martin of Baltimore $85,000 a year in the reproduction of engineering drawings and drawing-change notices.

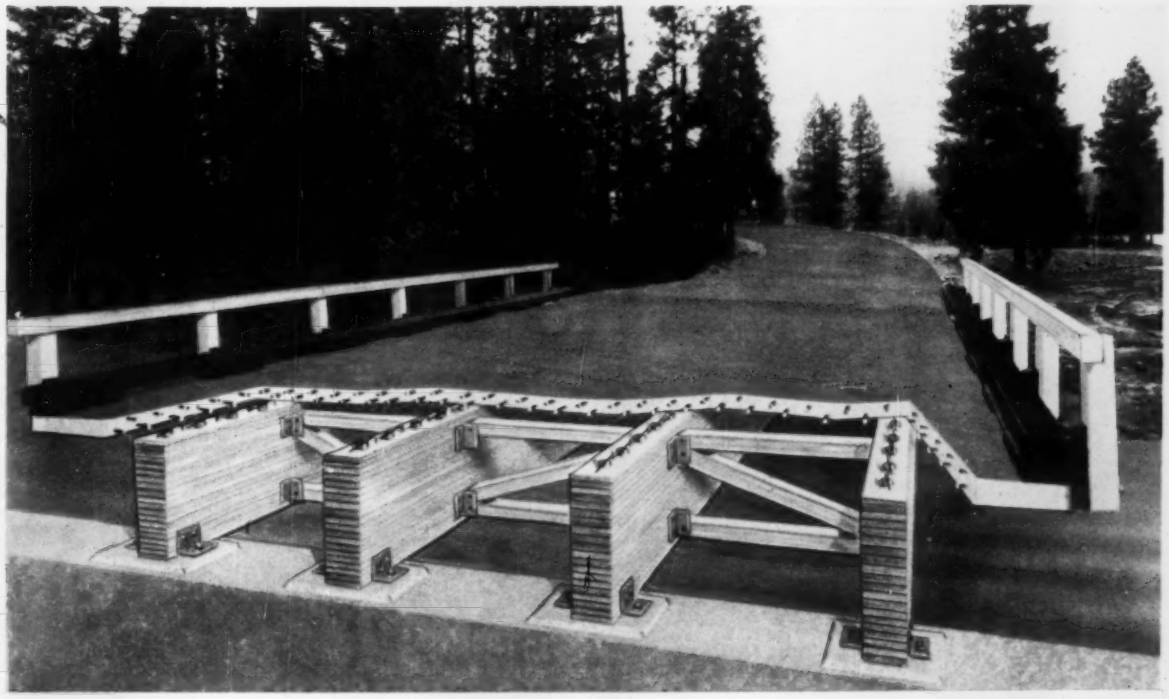
The Copyflo continuous printer, operating on the electrostatic principles of xerography, is completely automatic, enlarging microfilmed engineering drawings and change notices onto a continuous roll of inexpensive, offset-paper-master stock. This roll, 2,000 feet long by 12 inches wide, is then cut apart into individual masters for the runoff of multiple copies on offset duplicators.

Here are some of the advantages of the Copyflo 11 continuous printer to Martin of Baltimore:

- Annual savings of $85,000.
- Output of offset paper masters has doubled, with 50% reduction of personnel and duplicating equipment.
- Average of 20 minutes saved in engineering department on each of 50,000 yearly change notices.
- Improved quality of runoff copies.
- Specification books, training manuals, etc., now printed in half of former time, with half the paper and half the collating.

Where the copying of a few or thousands of *different* documents is needed daily, look to automatic xerography for the convincing answer. Copyflo printers enlarge, reduce, or copy same size. They offer the speediest, most flexible, most economical method to get copies precisely like the original—either from the document itself or from microfilm. For complete information, write HALOID XEROX INC., 58-136X Haloid St., Rochester 3, N. Y. Branch offices in principal U.S. and Canadian cities.

HALOID XEROX®



Prepackaging has come to bridge building. Now a . . .

Permanent Bridge Comes in Kit

Engineers at Timber Structures, Inc., have designed a permanent, prepackaged timber and concrete bridge. The low-cost structure is a reinforced concrete deck slab supported by built-up timber girders.

It comes in a complete "kit" that includes girders, girder bracing, wheel guards, handrails and posts, plus all necessary hardware and formwork cut to size and ready to use. Each member is marked to correspond with markings on drawings that accompany the kit.

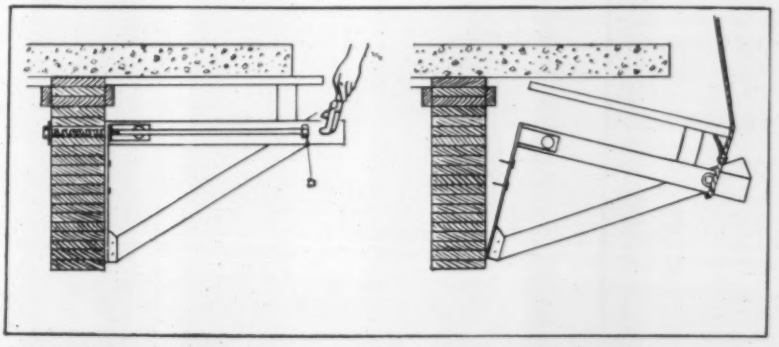
Once the abutments are ready, construction is rapid. A truck, tractor or simple A-frame can place the timber girders from either bank. Shear developers and tension ties are installed in the "glulam" (glued-laminated) girders to form a permanent bond with the deck slab. This gives a composite beam action in which the timber girders take the tension and the concrete slab acts in compression. The manufacturer claims the large-sized girders offer strong resistance to fire.

Next, ledgers are fastened to the girders. They support tongue-and-groove pieces that fit between the girders to serve as forms. The builder may treat these forms with preservative and leave them in place or remove them for re-use. Finally, reinforcing steel is placed and the concrete deck is cast.

Construction of two of these timber-concrete bridges in Oregon indicates that highway bridge crews or contractors can build the bridge quickly, without the help of expert bridge builders. The design is well suited for building overpasses without interfering with traffic below, since most of the work is done from above; this eliminates the need for scaffolding and shoring.

Kits are available for structures from 30 ft to 100 ft long in widths up to six lanes. More lanes can be added when needed by simply adding timber girders and casting additional reinforced concrete deck. The bridge design conforms to standards of the American Association of State Highway Officials, the Bureau of Public Roads and the federal aid program. It can take loadings of H-15, H-15 S 12, H-20 and H-20 S 16. TIMBER STRUCTURES, INC., Box 3782, PORTLAND 8, ORE.

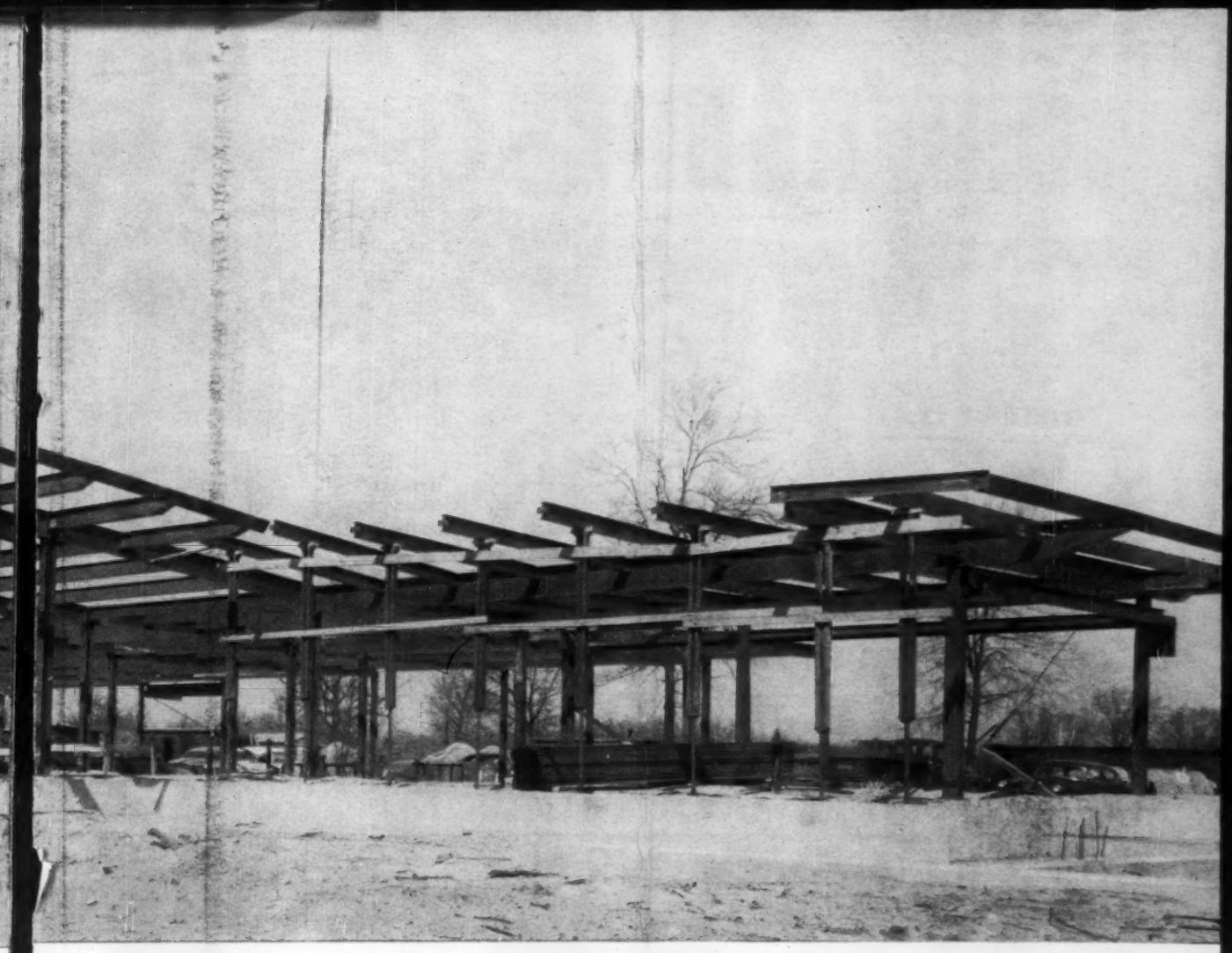
(*New Products continued page 52*)



OUTBOARD FORMS handle easily from above. Interior forms can remain or be removed.

USS Structural Steel from stock speeds

Toledo Express Airport Terminal fabricated with 225 tons of USS Structural Steel. Owner: City of Toledo; Architects and Engineers: Charles L. Barber & Associates, Toledo, Ohio; Consulting Engineers: H. A. Stepleton & Associates, Toledo, Ohio; Consulting Engineer: Porter W. McDonnell, Toledo, Ohio; Fabricator: Art Iron & Wire Works, Inc., Toledo, Ohio.



construction of Toledo Express Airport Terminal

This building had to go up in a hurry—that's one of the main reasons it was framed with USS Structural Steel. The design was straightforward and clean, so the 225 tons of steel could be delivered directly from stock.

Shop connections were welded and field connections bolted. The rigid frame steel construction offers strength, safety, economy of erection and minimum maintenance. It also gave a lot of design freedom, for it simplified the application of glass panel exterior walls.

Why it pays to use structural steel

- It is the *strongest*, yet *most economical* of load-bearing materials.
- Structural steel will withstand more abuse than other structural materials, effectively resisting tension, torsion, compression and shear.
- Once enclosed in buildings it lasts indefinitely—without maintenance.
- It can be riveted, bolted or welded . . . and erected in any weather.

QUICK DELIVERIES:

Recent expansion of production facilities assures quick deliveries and continuing availability of USS Steel Shapes and Plates to accommodate the increasing demands of the construction industry. Just call the nearest office of United States Steel. The telephone number is listed in local directories.

For your copy of "USS Steel Shapes and Plates," a handbook containing details, dimensions and weights, write to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

USS is a registered trademark

USS

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Tennessee Coal & Iron – Fairfield, Alabama
United States Steel Supply – Steel Service Centers
United States Steel Export Company

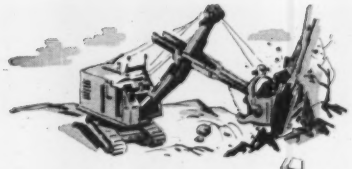
United States Steel

Weldynamics

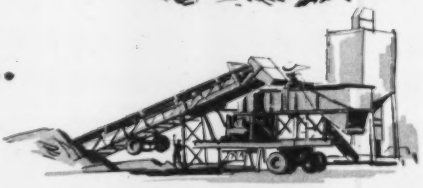
ARC WELDING AT WORK CUTTING COSTS

IF YOU...

BATTER IT...



GRIND IT...



OR JUST WEAR IT...

YOU CAN GET LONGER LIFE with Lincoln Hardsurfacing

Lincoln Hardsurfacing Electrodes are specially designed to resist specific types of wear. This means you can apply a surface that will give longest life under the wear conditions *you* are experiencing.

JET-HARD BU-90 For fast build-up of considerably worn parts where several layers of deposit are required. Deposits more metal per minute than other build-up rods. A high impact deposit with 25% - 50% more abrasion resistance than conventional high-carbon build-up electrode. Excellent for build-up of parts prior to hardsurfacing with Abrasoweld or Faceweld.

ABRASOWELD Resists severe impact and moderately severe abrasion. Provides surfaces with hardness to 55 Rockwell C. Especially good for dipper teeth, rock crusher hammers and other parts that come into contact with hard, solid obstacles.

FACEWELD Resists severe abrasion and moderate impact. Gives a tough chromium-carbide surface up to 58 Rockwell C that shrugs off the effects of grinding sand, gravel, grit and resists corrosive elements.

For detailed information on how to get longer equipment life at lowest cost write for Bulletin SB-1352.

The World's Largest Manufacturer of Arc Welding Equipment

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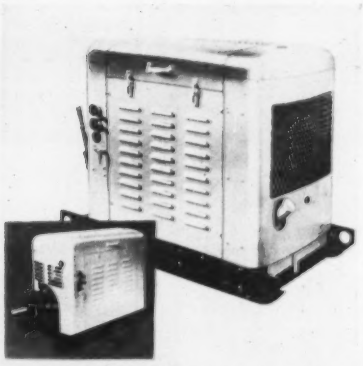


"Jeep" Engine Power Unit Mounted in Metal Housing

The Heavy Duty "Jeep" 6 cylinder engine has been incorporated into a complete Power Unit package, skid mounted and enclosed in a sheet metal housing.

The engine on the unit has a piston displacement of 226 cu in. and produces a maximum brake horsepower of 92 at 4,000 rpm and 82 at 2,600 rpm. Torque is suited to heavy duty applications, with a peak at 1,200 rpm of 180 ft-lb that drops off less than 10% as engine speed increases to 2,600 rpm. INDUSTRIAL ENGINE DEPT., WILLYS MOTORS, INC., TOLEDO, OHIO.

. . . New Products Briefs

• **Flatter trowel**—Longer wear with a flatter surface is reported by the manufacturer of "Rock-Rib" trowels. The blade is locked to the handle with a new type of fastener called a power pin, eliminating rivets in the trowel's construction. It is available in various sizes for cement finishers and plasterers. A stainless steel model is made to use where staining of white coats may be a problem. GOLDBLATT TOOL CO., 1910 WALNUT ST., KANSAS CITY 8, MO.

• **Grinding wheel**—Specifically designed for concrete grinding, this 6 in. cup wheel may be used for either wet rubbing or dry grinding. STOW MANUFACTURING CO., 443 STATE ST., BINGHAMTON, N. Y.

• **Plastic screw anchor**—Made for fastening screws in unbacked material such as plaster board, the "Wally" tenite plastic anchor may be used with any No. 6, 7, 8, 9 or 10 screw having a tapered thread. HOLUB INDUSTRIES, SYCAMORE, ILL.

• **Pipe insulation**—Problems involved in insulating underground hot pipes for schools. AMERICAN GILSONITE CO., 134 WEST BROADWAY, SALT LAKE CITY 1, UTAH.

Exclusive "Executive House" in downtown Chicago . . .

country's tallest concrete frame and floor building rises 40 stories in 371 feet!

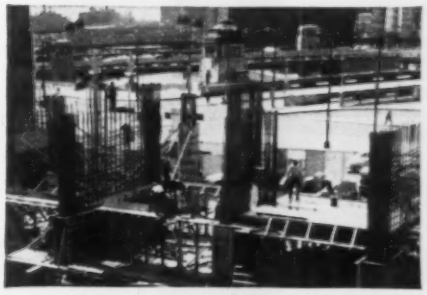
WHEN AMERICA BUILDS FOR THE FUTURE . . .
IT BUILDS WITH CONCRETE

This impressive $6,000,000 building with its 446 apartments brings luxury living to Chicago's business district.

On the 100 ft. x 150 ft. lot, space was at a premium. To make the most of it, architects Milton M. Schwartz & Associates, Inc., and the Miller Engineering Company, both of Chicago, chose *concrete*. With it, apartments are big . . . ceilings a full eight feet. Yet floor to floor height is only 8 ft. 10½ in. Plaster is applied directly to the concrete.

And concrete saved money—an estimated $500,000. It saved time, made easier scheduling, too. Concrete's always ready on short order.

Executive House sets a U.S. height record for concrete. Today, for high-rise buildings and monumental structures, more and more architects and engineers are turning to concrete.



Four concrete shear walls extending across the width of the building provide necessary resistance to wind forces.

FOR STRUCTURES...
MODERN
concrete

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

From Liberty Mutual: a concept of workmen's compensation coverage for today's economic conditions which provides

Protection in

—and how it cuts excess dollars from compensation insurance costs

The business-insurance rates you pay are, in the long run, determined by you

In today's business climate, it's more important than ever for you to keep your expenses down. If you have a large number of accidents, however, or suffer heavy losses over a period of time, you actually contribute to higher insurance rates for yourself. By doing everything you can *right now* to cut down on accidents and eliminate losses, you can help toward lowering your rates *in the future*—and help improve your company's profit picture.

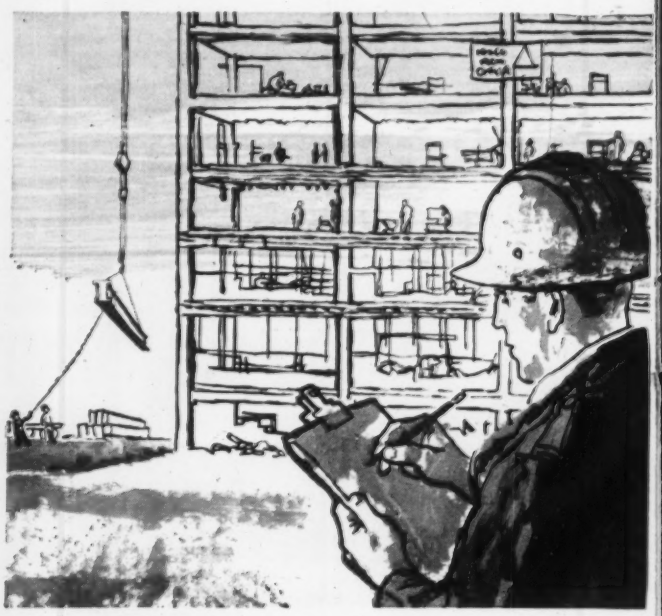
This is why Liberty Mutual—the company with the largest experience in workmen's compensation insurance—has over the years developed a forward-looking concept of business insurance which gives you protection in depth. From the start of your coverage with Liberty, a broad range of skills and resources can be put to work to anticipate and avoid trouble on your jobs and to keep future costs down.

Today, more than ever, *PROTECTION IN DEPTH* can be vital to the growth of your business

With competition so strong in the construction industry, it is apparent that the vigorous, efficiently managed companies will become the industry leaders of tomorrow. The protection in depth you get from Liberty not only helps you trim excess dollars from your insurance costs, but does it without sacrificing any of the coverage you need to safeguard your company during its growth.

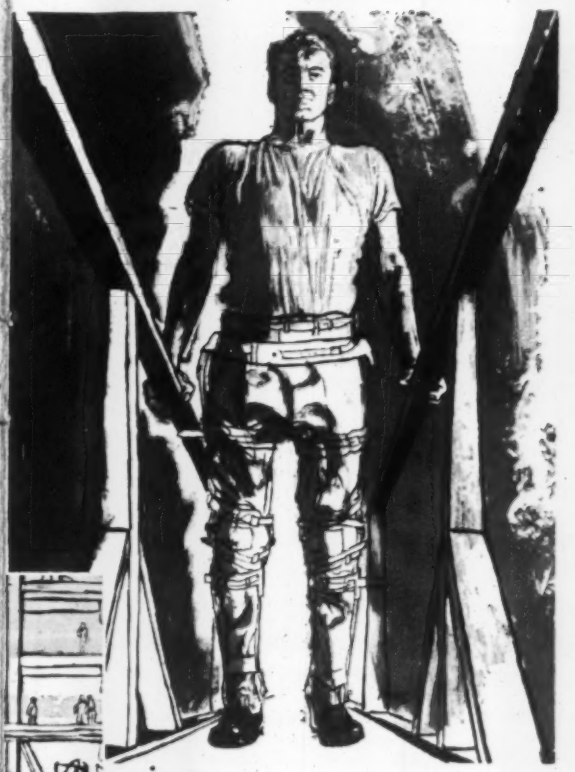
Protection in depth has already helped Liberty establish an impressive cost-cutting record and a record for consistently attracting "blue-chip" accounts. Because we deal directly, our salesmen know their business—and yours. With the vast experience of the company behind them, they can competently handle unusual problems in all fields.

We encourage you to take steps to improve your insurance cost picture by becoming acquainted with protection in depth now. (You should also know about our dividends: since 1912, we have returned more than $455 million to reduce policyholders' insurance costs.)



depth

World-wide trouble shooter. A Liberty engineer goes wherever you have a job. With offices spotted throughout the U.S., fast, experienced help is always nearby. Liberty engineers have provided assistance even as far away as the Philippines and Greenland.



Learning to walk...the second time. The facilities of Liberty's two rehabilitation centers are available to badly injured employees of policyholders. Through therapy and prosthetics, patients help themselves recover, get back on the job.

Keeping danger in check. Liberty's construction engineers conduct advance analysis of your jobs, look for accident hazards and ways to improve operating procedures. Guidance is offered on falsework design, materials handling, traffic plans, etc.

Behind *PROTECTION IN DEPTH* is the broad range of Liberty's special skills and resources

Liberty's special resources are sometimes unique, often broader in scope than most other companies or agencies can offer. Many are routine and offered as a standard part of our work. Others are ready to crack dangerous or money-wasting problems policyholders may have. Here are a few of them and how they can be put to work for you in a program that gives real protection in depth.

An 86-acre, loss-prevention research center. Here chemists, physicists and radiation experts work on extra-tough problems such as: When does worker fatigue begin to affect a man's efficiency? How can the "safe" amount of dynamite be predetermined for blasting in a particular locale?

A medical advisory service. Liberty retains top orthopedic surgeons in key areas to check diagnoses of serious injuries, advise attending physicians.

These Liberty "extras," and the others shown on these pages, all work to give you the best possible protection in depth. All are available to any policyholder who needs them. All of them can work with you to lower insurance costs.

Look for more from

LIBERTY MUTUAL

...the company that stands by you

LIBERTY MUTUAL INSURANCE COMPANY • LIBERTY MUTUAL FIRE INSURANCE COMPANY • Home Office: Boston
Insurance for: Automobiles, Liability, Group Accident and Health, Fire, Workmen's Compensation, Marine, Crime

SPECIFY A *Proven* SUBMERSIBLE PUMP

SPECIFY "weil"

weil Submersible Sewage and Sump Pumps have been in use since 1951. There is no substitute for experience.

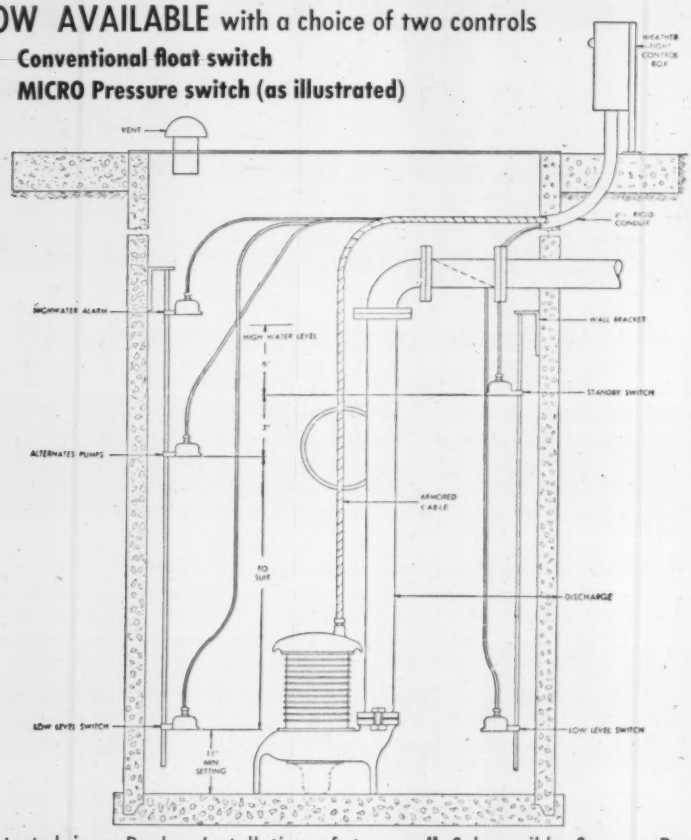
NOW AVAILABLE in a choice of two motors

1750 R.P.M. and Low Speed 1140 R.P.M. for longer life, less wear and improved non-clog characteristics.

NOW AVAILABLE with a choice of two controls

Conventional float switch

MICRO Pressure switch (as illustrated)



Illustrated is a Duplex Installation of two **weil** Submersible Sewage Pumps employing MICRO Switch controls to start and stop pumps; to alternate pumps; and to provide for high water alarm. Note the ease with which switches are positioned (or changed) to control water levels. The Submersible MICRO Switch has no exposed moving parts, needs no servicing and coupled with the **weil** Submersible Pump provides an extremely efficient non-clog trouble-free pumping system.

weil Submersible Pumps are manufactured in discharge sizes of 3" to 6" and capacities to 2000 G.P.M. There is a **weil** Submersible Pump to meet all requirements.

Send for Bulletin SE-860, SE 862 and SE 865 (505) for complete engineering information.

weil PUMP COMPANY

1528 North Fremont St. • Chicago 22, Ill.

Men and Jobs

General Barney to Head Missouri River Division

Maj. Gen. Keith R. Barney will succeed Maj. Gen. Gerald E. Galloway as Missouri River Division Engineer, Corps of Engineers, Omaha, this month. General Barney has been Director of Installations, Office of the Deputy Chief of Staff for Logistics, Washington, D. C., since January, 1955.

General Galloway, who has served as Missouri River Division Engineer since May, 1956, will succeed Maj. Gen. David H. Tulley as Commanding General, U. S. Army Engineer Center and Fort Belvoir.

D. R. McClung Is New Head Of Pacific Power & Light

D. R. McClung has been named president of Pacific Power & Light Co., Portland, Ore. Formerly executive vice president, he succeeds Paul B. McKee, new chairman of the board.

Mr. McClung has a 41 year record with PP&L, including service as a draftsman, field engineer, assistant chief engineer, general superintendent and assistant to the president. He was elected a vice president in 1948 and executive vice president in 1952.

Careers

Associations

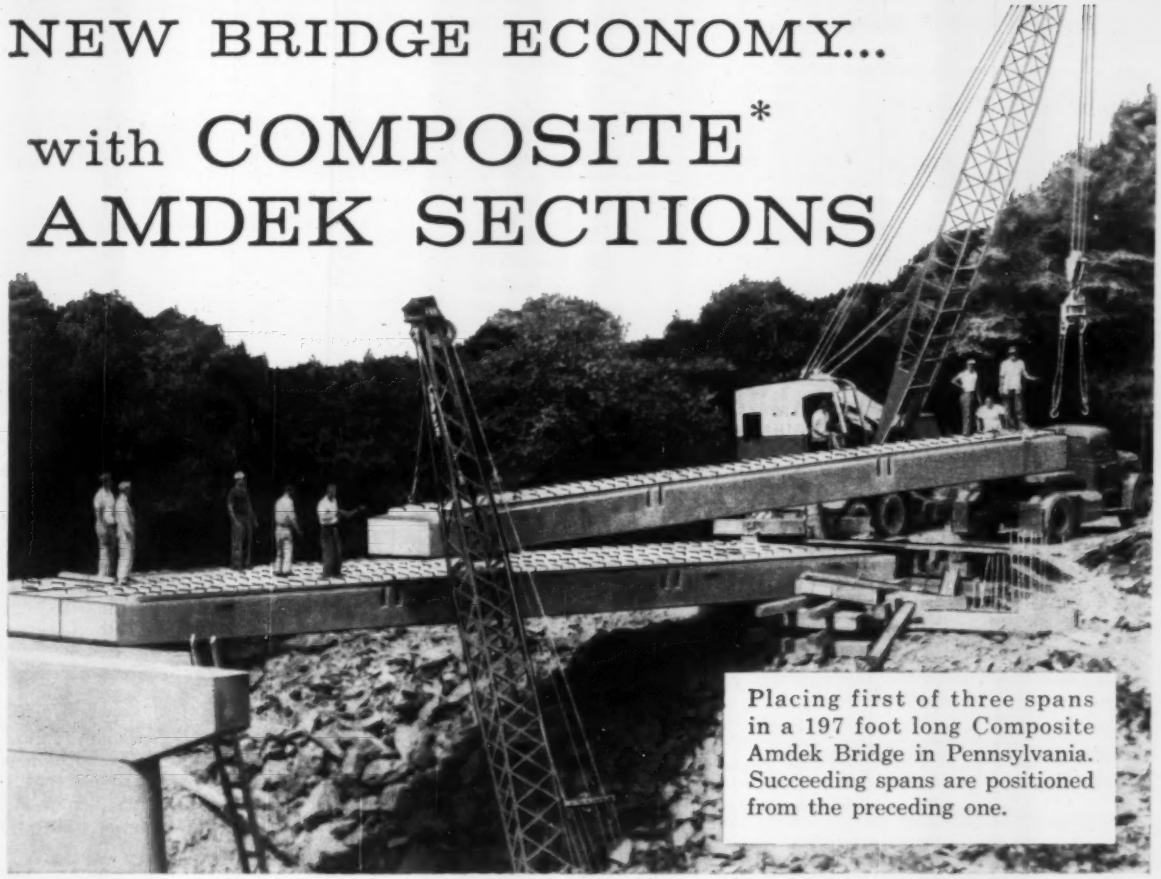
Paul F. Rice, past technical director of the American Concrete Institute, has joined the staff of The Concrete Reinforcing Steel Institute, Chicago, as assistant to the managing director.

Clyde Guder has been appointed district engineer at St. Louis for the American Institute of Steel Construction.

William H. Scheick has resigned as

NEW BRIDGE ECONOMY...

with COMPOSITE* AMDEK SECTIONS



Placing first of three spans in a 197 foot long Composite Amdek Bridge in Pennsylvania. Succeeding spans are positioned from the preceding one.

Another example of American-Marietta PROGRESS in CONCRETE

*After the new four-foot wide Composite Amdek Sections are positioned, a four-inch concrete deck is cast over the raised stirrups. The box sections and surfacing then become an integral working unit.

Composite Amdek Sections with concrete surfacing require less concrete, less handling and no form work—which results in considerable savings. Independent dynamic tests have proven their tremendous fatigue strength.

For information on this and on standard three-foot wide Amdek Beams without raised stirrups for use under asphalt surfacing, contact American-Marietta Company.

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

SERVICISED

SPECIAL PURPOSE PREMOLDED

JOINT FILLERS

Here are three widely used special purpose joint fillers—each with specific advantages and characteristics which permit it to provide optimum performance and utility. Complete data and specifications on each type are available upon request.

Sponge Rubber CEMENTONE®

High quality blown sponge rubber, uniform in thickness and density. Neutral gray color blends well with concrete.

advantages

1. Blends with the color of concrete
2. Fully resilient
3. Non-extruding, with high recovery after compression.

recommended uses... For use in concrete structures where utmost resilience, non-extrusion and/or inconspicuous joints are desired. Ideal for use in tilt-up and bridge construction.

SELF-EXPANDING CORK

Similar in composition to Cork Joint, but is specially treated to enable it to expand as much as 50% beyond original thickness.

advantages

1. Fully compressible
2. Non-extruding
3. Will keep joint spaces filled under conditions which open joint to more than original size.

recommended uses...
For use in canal linings and structures, outlet works, spillways, stilling basins of dams, sewage disposal plants and water filtration plants.

CORK

Composed of granulated cork and synthetic resin binder molded under heat and pressure to form a flexible, waterproof filler.

advantages

1. Light in color.
2. Compresses without extrusion
3. Recovers approximately 95% of original thickness after compression.

recommended uses... Extensively used in flood walls, outlet works and spillways, sewage and water treatment plants, bridge construction.

Want more details on Servicised Joint Fillers? Write for new manual—"The Design and Use of Joints in Concrete Structures."

SERVICISED PRODUCTS
CORPORATION
6051 WEST 65th STREET • CHICAGO 38, ILLINOIS

executive director of the Building Research Institute and the Building Research Advisory Board. He will become vice president of research and development for Timber Engineering Co., Washington, D. C.

Robert A. LaCosse has been appointed technical director of the Insulation Board Institute, Chicago. He was formerly associated with the National Lumber Manufacturers Association, Washington, D. C.

Education

Cletos O. Bennett, a 1926 civil engineering graduate of the University of Arkansas, has been named director of research and special projects for the Arkansas Foundation of Associated Colleges.

Herbert A. Lynch, Charlotte, N. C., consulting engineer, has been appointed a member of the staff of the North Carolina State College School of Engineering. He becomes head of a new branch of the school, at Charlotte, that is offering advanced engineering.

Public Works

Col. Charles S. Skillman, former commander of the 931st Engineer Group at Fort Polk, La., has been assigned as deputy commander of the Army Engineer Maintenance Center in Columbus, Ohio.

Fred W. Clayton has been appointed Transportation and Industry Officer for the International Cooperation Administration's' Mission in Afghanistan. A civil engineer, he was assistant chief of the Common Carrier Bureau of the Federal Communications Commission in Washington, D. C.

H. C. Anderson, former assistant district engineer for the Pennsylvania Highways Department in the Pittsburgh district, has been named chief of the State Highway and Bridge Authority. He succeeds **S. P. Longstreet,** who retired.

Col. Joe A. Clema has been named district engineer of the Corps of Engineers' Southern District, Leghorn, Italy.

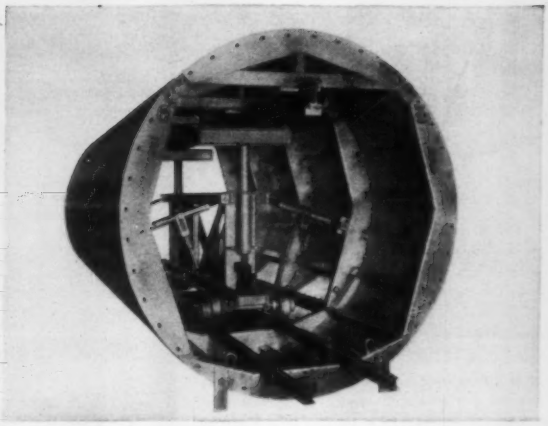
Eugene E. Roberts has assumed the post of Lorain County, Ohio, sanitary engineer.

Jan B. Carter, former city engineer at Little Rock, has been appointed head of the city's public works department.

William S. Gookin, chief engineer for the Arizona Interstate Stream Commission, has been appointed administrator of the Arizona Power Authority.

Col. E. E. Kirkpatrick, former head of the Jacksonville, Fla., District, U.S Army Corps of Engineers, retired from active service August 31.

POSEY STEEL FORMS



- Telescoping and Non-Telescoping Forms For Tunnels, Sewers and Conduits
- Air Locks and Lock Doors For Concrete Bulkheads
- Jumbos for Drilling, Timbering and Concreting
- Head Frames, Cages, Special Muck Cars, Self-Dumping Skips, and Muck Bins
- Special Equipment For Underground Construction

Posey Iron has the engineering experience and production facilities to handle all of your requirements for fabricated steel tunnel forms. For every job, big or small, Posey gets the work out as and when promised. Write, wire or phone without any obligation.

POSEY IRON WORKS, Inc.

Tunnel and Mine Equipment Division

LANCASTER, PENNSYLVANIA

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DIVISIONS: STEEL PLATE FABRICATION • TUNNEL AND MINE EQUIPMENT • IRON AND STEEL CASTINGS ASPHALT PLANT EQUIPMENT • BRICK MACHINERY AND MIXERS • INDUSTRIAL HEATING EQUIPMENT

NEW LOW-COST BALPLEX 760 SPEEDS HIGHWAY MAPPING

Here it is . . . the new aerial plotter specifically for highway and other large scale mapping. Now you can plot accurate large scale maps with small contour intervals . . . quickly and easily . . .with an investment of approximately $5000!

HIGH ACCURACY—LOWEST CAPITAL COST—New Balplex 760, complete, only $4950. Balplex 525, from $4600.

LOWEST COST PER MAP—Plots larger areas from fewer photographs taken at greater heights.

FAST, SIMPLE—Standard Multiplex operation, saves training time. Handles weeks of ground work in a few days!

MAIL COUPON FOR COMPLETE DATA

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BALPLEX
PLOTTERS

BAUSCH & LOMB OPTICAL CO.
89734 St. Paul St., Rochester 2, N. Y.

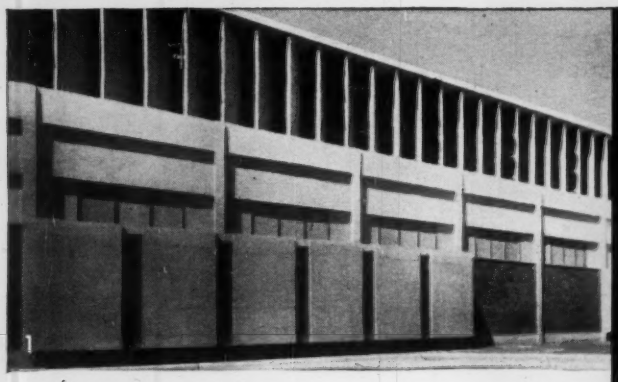
- ☐ Send information on Balplex 760 Plotter
- ☐ Send information on Balplex 525 Plotter
- ☐ Send information on Multiplex 360 Plotter

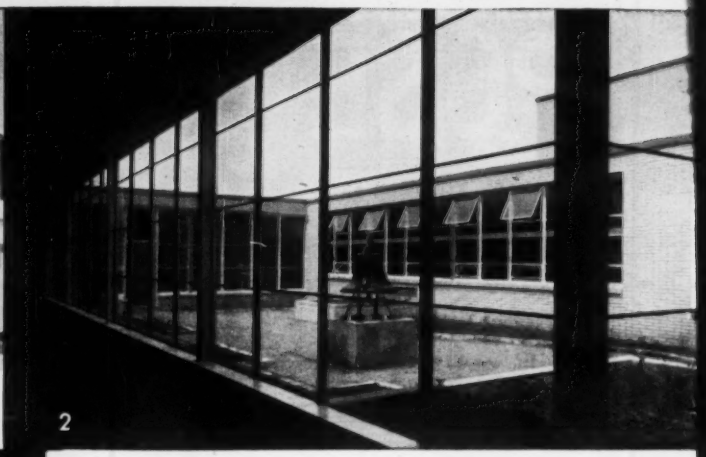
Name .....

Title ..... Company .....

Business Address .....

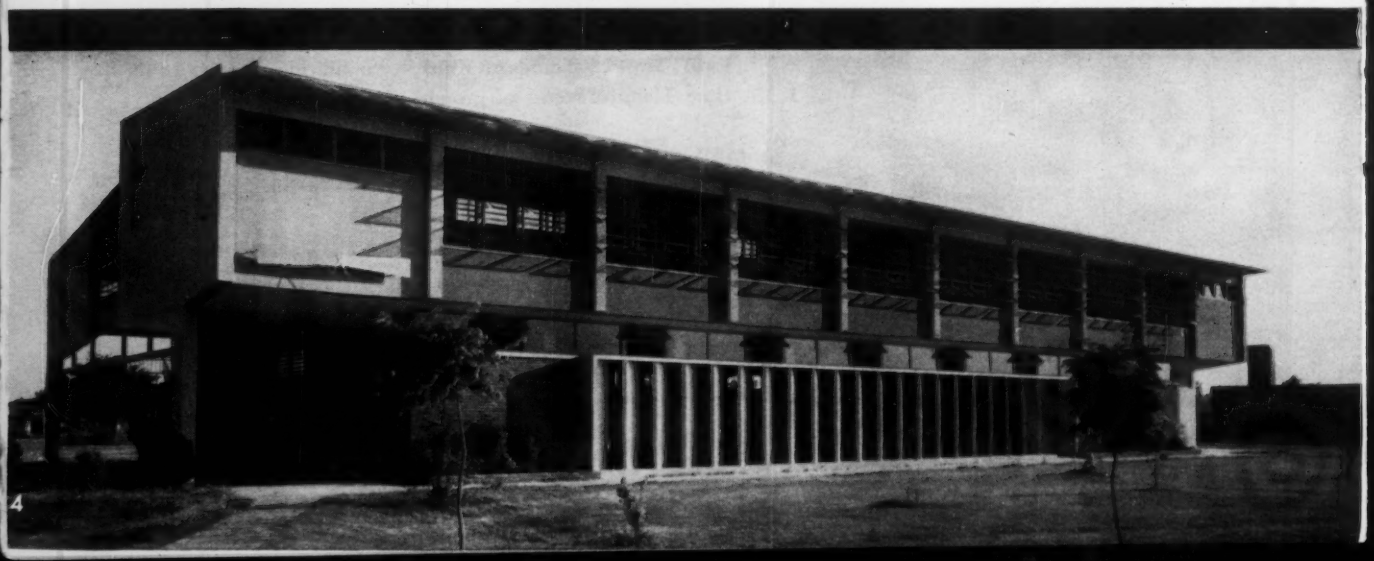
.....

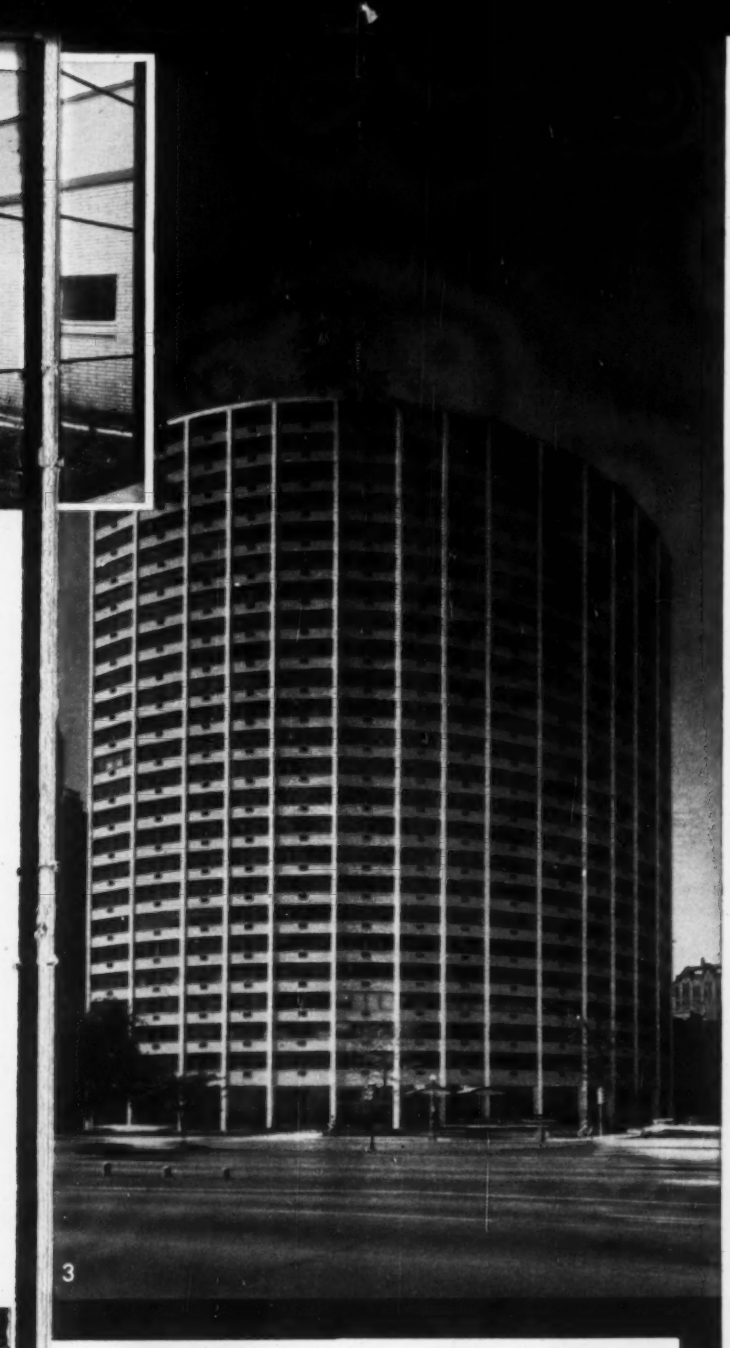




design ...with Truscon

Fill rooms with light. Decorate with night's reflections. • Capture the sky, the sun, the breeze, the clouds. • Frame the view and bring it inside. • Do all this with windows. And more. • Let your imagination soar . . . freely, in the knowledge that Truscon will provide the window-wings for your ideas. • Truscon makes the windows for architectural artistry. Steel and aluminum. Curtain walls, too. • *Catalogs, details, and design assistance on request.*





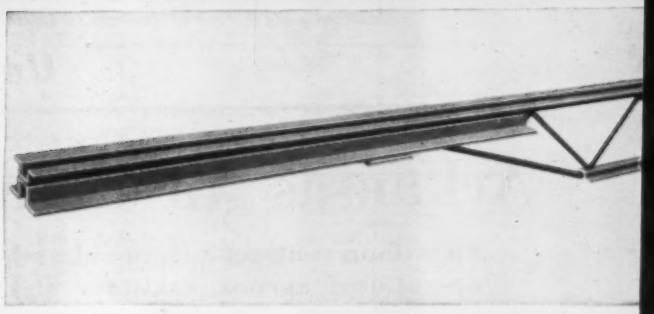
3

1. Truscon Intermediate Projected and Donovan Steel Windows.
St. Catherine of Sienna Church, New Orleans, La.
Burk, Le Breton, and Lamantia, architects.
Lionel F. Favret, Inc., contractor.

2. Truscon Commercial Projected, Architectural Projected, and Donovan Steel Windows.
Jefferson-Morgan Junior-Senior High School, Jefferson, Pa.
Celli and Flynn, architects.
Graziano Construction Co., contractor.

3. Truscon Series 138 Steel Double-Hung Windows and Screens.
1150 Lake Shore Drive Apartment, Chicago, Ill.
Hausner and Macsai, architects.
Crane Construction Company, contractor.

4. Truscon Donovan Steel Windows.
Blessed Pius X Church and School Building, New Orleans, La.
William R. Burk Associates, architects and engineers.
Perrilliat-Rickey Construction Co., contractors.



NEW TRUSCON "O-T" STEEL JOIST IN A NEW DESIGN to fulfill your building ideas. Straight bottom end to carry to spandrels and columns. Economical extended end. Designed to balance with all other structural elements. Cold formed steel sections not only make an exceptionally strong joist, but also add a pleasing appearance. In cooperation with the Steel Joist Institute, Truscon will market this new joist designed to 20,000 psi. working stress in January, 1959. Send coupon for details.

TRUSCON SERIES 57 STEEL DOOR designed for exterior-interior use . . . for residential, commercial, and public buildings. Particularly recommended for monumental structures, including schools and hospitals. 1-¾ inches thick. Sound-deadened. Bonderized and primed with high quality light gray paint baked on at the factory, the finish is a perfect base for field painting in any color. Send coupon for types, sizes, specifications.

DESIGN MONOLITHIC MASTERPIECES with Truscon Metal Lath and plaster construction. Metal lath is easily shaped and curved in interesting contour. Ceilings and walls allow full decorating freedom. Monolithic properties mean extra fire-resistance, shock-resistance, damage-resistance, long service. Truscon makes more than 40 different metal lath and accessory items. A catalog should be in your files. Send coupon.

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TRUSCON DIVISION

NAMES YOU CAN BUILD ON

REPUBLIC STEEL CORPORATION
TRUSCON DIVISION
DEPT. C-6521
1060 ALBERT STREET • YOUNGSTOWN 1, OHIO

Please send additional information on:

☐ Steel Windows ☐ "O-T" Steel Joist
☐ Metal Lath ☐ Series 57 Steel Doors

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

Arkansas Air Base Is Jet-Proofed

$6 million contract includes blast deflector pavement, operational aprons, taxiways, lighting and utilities

Over 47% of this $5,847,307 contract to Peter Kiewit Sons' Co., Wichita, Kan., goes for concrete blast deflector pavement at $8.80 a cu yd and portland cement concrete for the pavement at $4.20 a bbl.

The award by the Corps of Engineers, U.S. Army Engineer District, Little Rock, Ark., is less than 2% under the engineer's estimate, and only 6.1% below the high of the five bids.

Work is for the Blytheville Air Force Base, Blytheville, Ark. It includes widening and extending an existing 10,000 x 150 ft runway to 11,600 x 300 ft; construction of 3 aprons, 3 taxiways, shoulder pavement on 8 taxiways and 3 aprons; 1,000 x 300 ft overruns at ends of runways; extension of lighting on runways, taxiways and aprons; relocation of drainage ditch; 23,000 lin ft of fence; access and patrol roads, and water line.

The contractor furnishes all materials except some airfield lighting equipment.

Wages on the job range from a high of $2.00 for skilled, through $1.50 for semi-skilled, to $1.00 for common laborers. Concrete finishers, mixer and power operators are paid $2.00.

The five bids include:

1C	Peter Kiewit Sons' Co., Wichita, Kan.	$5,847,307
2	J. B. Michael & Co., Inc., Memphis, Tenn.	5,894,813
5	Tombigbee Constructors, Houston, Tex.	6,227,103
EE	Corps of Engineers, Little Rock, Ark.	5,965,611

Bids: 5-7-58 Items	Unit	Quantity	Unit Prices 1C	2
Clear, grub, demolish & salvage	ls	job	$160,000	$50,000
Remove existing pavement, blast protection	sy	19,300	0.14	0.25
conc, 9" or thicker	sy	20,800	0.94	2.00
under 9"	sy	35,400	0.46	1.00
flex transi, varying thickns	ls	job	1,800	3,200
Excavation	cy	961,700	0.495	0.50
Base crse under conc pavement	cy	71,100	4.40	4.62
Concrete pavement	cy	184,100	8.80	10.51
Portland cmt for pavement	bbl	276,200	4.20	4.46
Pavement jts, clean existing	lf	270,000	0.10	0.09
reseal existing	lb	75,000	0.15	0.14
Subbase course material	cy	113,620	5.20	4.25
Stab agg base crse material	cy	61,400	8.82	7.15
Bituminous prime coat	gal	80,100	0.18	0.16
tack coat	gal	5,700	0.18	0.16
binder course	t	13,250	6.50	6.07
surface course	t	27,930	6.50	6.07
matl for surf & binder crse	t	1,000	33.00	32.15
Dbl bit surf, agg for	t	1,500	7.00	6.00
matl for	gal	37,000	0.18	0.16
Pipe culv, storm drains, protect slvs & inlet drn pipe	ls	job	158,600	175,000
Subdrains	ls	job	21,000	26,000
Conc base, standard	ea	64	35.00	24.20
w/handhole, entr-exit	ea	10	400.00	344.30
elevated light	ea	106	160.00	170.50
semiflush light	ea	299	195.00	191.40
distance mkr lgt	ea	38	55.00	42.90
bar base, semiflush	lf	420	63.00	44.00
elevated	lf	210	50.00	33.00
Lighting units	ea	650	12.50	5.50
Distance marker light unit	ea	38	26.00	17.60
Vault bldg extension	ls	job	2,500	4,400
& contr tower elec work	ls	job	4,600	2,398
Cable in duct or conduit	lf	43,600	0.09	0.165
in earth	lf	133,800	0.25	0.22
Counterpoise, #4 cu	lf	93,000	0.15	0.099
Cable pull box	ea	1	450.00	797.50
Type H duct, direct burial	lf	20,500	1.45	0.99
Steel conduit, 2" jacked	lf	1,420	4.50	1.98
extended	lf	400	2.30	1.375
Threshold lighting, temp	ea	3	260.00	110.00
Elec duct, conc encased	ls	job	45,000	27,280
Water distribution system	ls	job	70,000	52,300
Identif ptg & distance mrks	ls	job	21,500	20,300
Fence, boundary	lf	17,500	0.55	0.80
security	lf	5,600	3.00	1.80
security reloc	lf	1,061	1.30	1.00
Laboratory bldg & facilities	ea	2	3,500	3,500
Mulch	t	180	75.00	55.00
Sod & fertilize	sy	200	1.60	1.50
Replacement in test holes of conc pavement	ea	16	75.00	35.00
subbase&stab agg base crses	ea	6	75.00	20.00
base course under conc pave	ea	16	20.00	15.00
hot mix asph conc	ea	6	25.00	10.00
subgrade	ea	34	20.00	5.00
Conc hangar access apron	cy	600	2.00	3.00
RR spur track	ls	job	400.00	750.00
Water separator shed reloc	ls	job	2,200	2,500
Truck fill stands reloc	ea	2	1,500	1,350
Manhole raise	ls	job	300.00	250.00
RR crossing	ls	job	600.00	500.00
Conc curb & gutter	lf	140	3.50	3.00
Fuel lines, 6" new, hangar access apron	lf	750	6.00	5.50
Electrical work	ls	job	2,800	1,210

i instal r&d remove & dispose r&s remove & salvage
Commence: 5-14-58 Completion schedule: 540 cal days
Liquidated damages: $250/cal day

Bidding Is Tight on Four Mile Hydro Tunnel

Tunnel excavation ranging from $150 to $275 per cu ft accounts for 61.4% of the total contract for this Sacramento Municipal Utility District's Upper American River hydro project.

The award at $5,175,135 to Frazier-Davis Construction Co., St. Louis, is for the tunnel and related work, and for construction and maintenance of access roads.

The low bid was less than a fraction of a per cent below the second of the eleven bids, but it was more than 40% below the high bid.

James E. McCaffrey is chief engineer for the Sacramento Municipal Utility District and Clyde H. Spencer is project engineer.

The tunnel, 15 miles northeast of Placerville, El Dorado County, will be 21,100 ft long, 14 ft wide and 14 ft 3 in. high. An estimated 6,300 ft will be supported and concrete lined.

Concrete for tunnel lining must develop a compressive strength of 2,500 psi; all other concrete, 3,000 psi.

The contractor furnishes all material except concrete aggregate and sand, plate steel liner, adit door and frame.

Truck transportation is available. The nearest railroad is 30 miles from the site.

The 11 bids on the project shaped up like this:

1C	Frazier-Davis Constr. Co., St. Louis	$5,175,135
2	Walsh Constr. Co. and Perini Corp., San Francisco	5,191,685
11	MacLean-Grove Co., Inc., New York City	8,897,910

Bids: 6-3-58 Items	Unit	Quantity	Unit Prices 1C	2
Exc, open cut, common	cy	2,000	$2.00	$1.30
rock	cy	11,000	5.00	3.30
tunn sect S-1 & S-2	lf	500	160.00	168.00
U-1, C-1, 2&3	lf	20,500	150.00	160.00
on incline	lf	80	275.00	325.00
rock trap enlargement	lf	220	105.00	246.00
surge shaft	lf	178	340.00	376.00
adit	lf	850	150.00	163.00
Feeler holes drill	lf	500	2.00	2.90
Water, handle excess	Mg	50	650.00	200.00
Tunn supports, stl f&m	lb	1,000,000	0.40	0.24
timber f&m	Mfbm	200	300.00	293.00
Lagging, sills, bracing & blocking f&m	lf	6,300	20.00	16.00
Roof bolts f&i	lf	10,000	1.75	2.05
Gunite	cf	5,000	7.00	10.50
Grout & drain holes, drill	lf	3,000	4.00	1.35
Grouting connections	ea	200	5.00	12.00
Pressure grouting	cf	2,500	15.00	7.40
Adit portal struct, constr & instal adit gate	ls	job	1,500	4,500
Conc, surge shaft collar	cy	25	50.00	114.00
Adit plug	cy	260	25.00	37.00
tunn outlet portal	cy	20	50.00	69.00
div walls in rock trap	cy	10	50.00	177.00
Portland cement	bbl	23,000	5.00	4.80
Pozzolan	t	750	30.00	25.00
Conc lining, tunn sect C-1 & C-2	lf	6,000	55.00	53.00
C-3	lf	80	65.00	170.00
adit	lf	150	55.00	67.00
surge shaft	lf	178	200.00	190.00
bkfl, tunn sect S-1 & S2	lf	500	40.00	86.00
lining forms, tunn sect C-1 & C-2, 160 lf	ls	job	60,000	35,200
add length	lf	40	350.00	180.00
C-3, 40 lf	ls	job	15,000	12,200
add length	lf	20	325.00	232.00
Steel reinforcing	lb	200,000	0.20	0.19
Welded wire fabric	lb	3,000	0.20	1.35
Misc metal	lb	17,000	0.50	0.50
Discharge line f&p	lf	510	5.00	3.80
Plate steel liner i	lb	370,000	0.14	0.11
Metal door & frame i	lb	6,600	0.15	0.12
Access roads construct	ls	job	200,000	204,447
CMP, 48" f&i	lf	100	15.00	42.00
36" f&i	lf	150	11.50	27.00
24" f&i	lf	400	7.00	15.00
18" f&i	lf	500	4.50	11.00
Access road maintain	mo	25	2,000	2,182

f&i furnish & instal f&p furnish & place f&m furnish, instal & maintain i instal

Commence: 6-16-58
Complete: 8-1-60
Liquidated damages: $800/day

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Iron and Steel Products: Last, Sep. 11; Next, Oct. 16
- Wood Products, Glass, Explosives, Chemicals: Last, Sep. 19; Next, Oct. 23
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Sep. 25; Next, Oct. 30
- Wage Rates, Building Board, Lath, Insulation: Last, Oct. 2; Next, Oct. 30

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.,* truckload del.,* per block		CONCRETE Ready Mixed 1:2:4 del.
	Paper	Bulk	Mortar	Gravel, 1½ In.	Gravel, ¾ In.	Sand	1½ In.	¾ In.	1½ In.	¾ In.	Sand grav.	Lt. wgt. agg.	50 cy & over
Atlanta	$4.35	$3.93	$3.60	$3.10s	$3.10s	$2.50‡s	$2.18s	$2.33s	$1.65s	$1.75s	$0.175o	$0.21o	$14.50g
Baltimore	3.90a	3.80a	3.32a	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	18a	18a	13.10/13.60
Birmingham	4.23c	3.30cf		2.53ns	2.53ns	2.13ns	2.75s	2.75s	1.65r	1.75r	18	18	13.55q
Boston	5.80ei	4.59a	4.67eim	3.00as	3.00as	3.00as	1.75as	1.85as			23o	.275ao	15.00p
Chicago	4.13ag	3.87ag	3.90/3.95g	3.78‡e	3.78‡be	4.13‡be	3.95‡be	3.95‡be	2.25‡e	2.25‡e	25‡e	25be	13.50e
Cincinnati	4.68c	4.16c	4.18c	2.29‡cu	2.34‡cu	2.34‡cu	2.64‡cu	2.64‡cu	1.89u	1.89u	19o	24ao	13.25or
Cleveland	N.A. in C.L.		3.89‡ae	2.25ae	2.10ae	1.75ae	4.50‡af	4.50‡af	3.45‡f	3.45‡f		22f	14.65f
Dallas	3.75a	3.25a	3.63	2.65‡	2.70‡	1.90‡	2.43	2.63				27	12.20
Denver	4.79a	4.29a	4.79	1.90	2.05	1.20‡b					22	245a	10.70
Detroit	4.25a	3.75a	3.72a	4.50‡abs	4.50‡abs	4.25‡abs	3.75‡as	3.75‡	3.50‡	3.50‡	24	27a	14.40
Kansas City	4.23a	3.83a	4.10a			1.70‡a	2.00‡a	2.00‡a			22a	26c	13.50
Los Angeles‡	5.12‡h	4.68‡h	5.60c	2.56‡at	2.76‡at	2.41‡at	2.41‡at	2.46‡at			17fm	.285m	12.95‡hl
Minneapolis	4.42a	4.01a	4.08a	2.70‡ae	2.70‡ae	1.60‡ae	3.95‡ae	3.95‡ae			19q		14.30f
Montreal	3.70‡de	3.11‡de	3.72‡de	1.90‡a	2.15‡a	2.40‡a	1.90‡i	2.15‡i	2.00i	2.00i	20	28f	10.80ek
New Orleans	4.06b	3.65b	3.85b	2.45b	2.45b	2.09b†			1.45	1.65†	.275r		14.00o
New York	4.65a	4.14a	3.69		3.20bk	3.20bk	3.10bl	3.10bl			25n	.276b	17.40an
Philadelphia	4.57‡a	4.16‡a	3.61‡	2.85‡a	2.85‡a	2.35‡a	2.70‡	2.80‡	2.00	2.35	.25/.32		14/15d
Pittsburgh	5.65bjk	4.62bj	5.00bjl	2.68‡aqp	2.68‡aqp	3.08‡aqp	2.00‡aqp	2.00‡aqp	2.20w	2.20w	26r	28r	15.80o
St. Louis‡‡	4.16/4.48c	3.76/4.08c	3.86/4.18c	3.25amz	3.10amr	2.40/3.10amz	1.65ajr	1.75ajr			24‡	33‡c	12.65/13.15
San Francisco	4.06c	3.69c	4.53c	2.02	2.02	2.12	2.17	2.17			24	28cl	13.00c
Seattle	4.22‡a	3.70a	4.40a	4.25‡bm	4.25‡bm	4.25‡bm	4.50‡bm	4.50‡bm			26s	37cs	13.90j
Toronto	4.00an	3.84ad	4.00an	2.40	2.40	2.05	2.20	2.20	2.20	2.20	26	275c	15.25s

‡ Delivered. * Prices incl. dealers discount except as noted. # Add 4% sales tax. ## Add 2% intrastate sales tax.

CEMENT: •a Less 10¢ disc. 15 days. •b Less 2% disc. 15 days. •c Less 10¢ disc. 10 days. •d 10¢ disc. 20 days. •e Truckload lots. •f Fob mill, add $14.58 to $21.31 per car switching charges. •g fob mill + freight. •h LCL. •i Less 2% disc. 10 days. •j Truck lots, fob yard. •k 100 bag lots •l over 150 sacks. •m Sold in bags only. •n Less 5% disc. 30 days.

SAND GRAVEL, STONE & SLAG: •a Truck lots. •b Per cu. yd. •c 5 tons or more. •e Less 2% disc. 10th •f Less 2% disc. 15th. •g Less 5% for cash. •h Less than 5 tons. •i Plus 6% mun. & prov. tax. •j F.o.b. quarry. •k Barge lots asd. •l F.o.b. scow Hudson river. •m Less 2% for cash. •n F.o.b. cars. •q F.o.b. yard •r Less 5% disc. 15th. •s Less 2% disc. 10 days. •t Less 10¢ disc. 10 days. •u Less 5¢ disc. 10 days. •v Less 2% disc. 15 days. •w Less 10¢ disc. 15 days. •† Revised.

CONCRETE BLOCK: •a Cinder. •b Waylite. •c Haydite. •d Celocrete. •e 5¼ x 8 x 12 in. •f 8 x 4 x 16. •g F.o.b. truck at job. •l F.o.b. plant San Rafael. •m F.o.b. yard. •n 8 x 8 x 18. •o Less 2% disc. 10 days. •p Less 2% disc. 10th, •q Less 5% disc. 10th. •r Less 2% disc. 15 days. •s Less 2% disc. cash. •t Siporex. 7 x 9 x 18. •u Less 5% disc. 10 days.

Ready MIXED CONCRETE: •a 6 cu yd or over del. Man. •b 25 cu yds or more. •c 10-100 cy. brackets. •d 1-3 mi. zone add 15¢ for ea. add'l 1-mi zone. •e 2,000 lb comp. •f 2,500 lb. comp., less 5% disc. 30 days. •g Less 25¢ disc. 15 days. •h Less 50¢ for cash. •i 5% off for cash. •j 2% off for cash. •k Federal tax included. Add 6% mun. & prov. tax. •l 1:2½:3½ base price. •n F.o.b. yard. •n Plus escalator clause. •o Less 2% disc. 15 days. •p Less 50¢ disc. 15 days. •q Less 2% disc. 10 days. Add 50¢ per zone. •r 2000 wgt. •s Less 5% disc. 10 days.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.45†	Buffington, Ind	$3.40†	Steelton, Minn	$3.45†	Muskegon, Mich	$3.45†	Toledo, O	$3.45†
Clinchfield, Ga	3.45†	Independence, Kan	3.25†	Leeds, Ala	3.30†	Saginaw, Mich	3.45†	Milwaukee, Wis	3.50†
Kingsport, Tenn	3.45†	Hannibal, Mo	3.35†	Duluth, Minn	3.45†	Wyandotte, Mich	3.45†	Green Bay, Wis	3.50†
West Des Moines, Iowa	3.50†	Northampton, Pa	3.35†	Hudson, N. Y.	3.35†	Buffalo, N. Y	3.55†	Ironton, O	3.45†
Nazareth, Pa	3.35†	Universal, Pa	3.60†	Alpena, Mich	3.35†	Oswego, N. Y	3.60†	Montreal City	2.56†
Bath, Pa	3.35†	Waco, Tex. (+ 10¢ tax)	3.35†	Detroit, Mich	3.45†	Cleveland, O	3.50†	W. Winfield, Pa	3.60†
Lesley, Pa	3.35†	Glant, S. C	3.45†	Howes Cave, N. Y	3.35†	Alsen, N. Y.	3.35†	Security, Md	3.35†

† *Prices to hold for first quarter of* 1958.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta				$30.50S	$45.00S	$0.15S	$0.26S	$0.125PwS	$0.28PwS	$0.14S	$0.125S	$0.30S
Baltimore	150.00‡			23.00i		.095i	0.185i	.10wE	.19wE	.10i	.105i	0.195i
Birmingham		66.00i										
Boston				22.00ap	46.00ap	22.00a	46.00a	.105aFw	.24aFw	.135aOR	.145OR	.235aGo
Chicago	150.00‡a	90.00‡ab	3.95/4.00‡aj	21.20b	31.20b	20.40bs	30.40bs	.975bwH	.1775bwH	.080b		
Cincinnati												
Cleveland		89.50‡dg	6.30g	25.00tA		25.00tsA		.1115twAF			.1180tAG	.21AG
Dallas	e	40.78	e	26.30	45.30	.1116	.1944	29.85	51.40	.1080	.1116	.1944
Denver		58.00										
Detroit		116.00		33.05		32.45v		13.50l		.1133		.28
Kansas City	e	e	e	18.00cl		18.00cv		.0825cwJ		.06c	0.125c	
Los Angeles‡	e		e	22.50dmx		22.50dnx		24.00dx K		23.00dx	.1038j	.2038j
Minneapolis			3.73h	26.00		26.00v		0.115w		0.105	.125t	
Montreal	e	e	e	32.50n	59.80n	.176n	.226n	18.70nuE	23.70nuE	.154n	.242ns	.27ns
New Orleans				20.00e	o	20.00ev		.095ew	o	.085B	.095BL	.1905B
New York			3.50f	20.99m	42.94m	20.99nt	40.94nt	9.61uF	19.01uF		9.68u	19.11u
Philadelphia	175/185	110/120	4.06	24.00U		24.00U		11uFU		105U		
Pittsburgh	60.00k	83.25lno	6.35n	31.40is		31.40isv		1411iqu		14‡V	1411iu	
St. Louis‡‡				19.74f		1855f		0893fwM	.0918fw	0.165‡	825Q	30‡
San Francisco		70.00		24.50g	41.50g	24.50gkv	41.50gkv	24.50gN	43.00gN	25.25gvW	25.50yt.X	.2063gX
Seattle				26.00z	41.00h	26.50ez		27.50K		25.25kvY	24.50kvX	46.10krvX
Toronto		135.00	4.50f	40.10	59.38	0.2005	0.2445	0.214w	0.258w	0.198	0.216Z	.271Z

‡ Delivered. # Add 4% sales tax. ## Add 2% intrastate sales tax.

PAVING BRICK & BLOCK: •a Less 2% disc. 10th. •b 3 x 3¾ x 8. •c 2½ x 8¼ x 4. •d Truckload lots. •e Not used. •f 2" interior 6 lb tr. •g Less $1./Mdisc. 15th. •h 2" tr, 6 lb. •i 3 x 3 x 8½. •j 2½", 6 lb. tr. •k Used. •l Redshale. •m Pine; oak $6.57. •n Truck del. •o Less $1./M disc. 15 days.

ASPHALTS: •a F.o.b. refinery, Everett, Mass. •b F.o.b. refinery, Lockport, Ill. •c F.o.b. Sugar Creek, Mo. •d F.o.b. refinery, El Segundo. •e F.o.b. Baton Rouge. •f F.o.b. Hartford, Ill. •g F.o.b. refinery, Richmond, Calif. •h F.o.b. Martinez. •i F.o.b. refinery, Baltimore. •j F.o.b. refinery, Inglewood, Calif. •k 50-110 penetr. •l Less than 100 penetr. •m 40/300 penetr. •n F.o.b. refinery, Montreal. Fed. tax included; add 6% for mun. & prov. •o Drums not avail. Shipped in steel bbl. •p 80/70 penetr. •r In customer's drums. •s Shipped in drums, per drum. •t 150/300 penetr. •u Per 100 gal. •v Per ton. •w Per gal. •x Also tank trucks. •y F.o.b. Oakland. •z F.o.b. Edmonds. •A F.o.b. refinery, Cleveland. •B F.o.b. Destrehan, La. •E RC. •F Also RC. •G Also MS, SS. •H RC 0-5 incl. •I MC 4. •J MC, RC $0.095. •K MC 3, 4, & 5. •L MS. •MC 1-5, RC 1-5, $0.106. •N MC 3. •O Truck-load. •P F.o.b. refinery Savannah: $3.09/gal., tank cars; $0.20/gal., drums. •Q F.o.b. Eldorado, Ark. •R Delivered within 50 mi. •S Less 2% disc. 10 days, net 30. •T Less 1% disc. 10 days. •U F.o.b. refinery. •V Less 2% disc. 15 days. •W SC 2. •X RS 1. •Y SC 1. •Z Incl. 13% Sales Tax.

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ **Pa., Ebensburg**—SCHOOL—BA 10/29—General State Auth., 18th and Herr Sts., Harrisburg, state school for retarded children. $5,000,000. Plans deposit $50. Extended date. C. J. Lappley, Riverview Manor, Harrisburg, archt. A. F. Jones, c/o owner, ch. engr. CD 9/11.

HEAVY CONSTRUCTION—LB & CA

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg, Bids opened 9/25,

Pa.—**Lycoming Constr. Co.**, 127 Susquehanna St., Williamsport, Pa. LB **$3,489,999** (6 bidders), 24,850 ft. c. conc. 24 ft. wide each side 60 ft. earth divisor. 2 alt. superstructure bridges. Sec. Scranton-Binghamton Thruway. (Proj. 820-2) FAI. Harford & New Milford Twps., Susquehanna Co.;

Pa.—**L. G. Defelice & Son, Inc.**, Nettleton Ave., North Haven, Conn. LB **$3,297,233** (6 bidders), 26,055 ft. c. conc. hy. each side 60 ft. earth divisor; 6 bridges, section Scranton-Binghamton Thruway, (Proj. 820-1) FAI, Lenox and Harford Twps., Susquehanna Co.;

Pa.—**The Lane Constr. Corp.**, Drawer 911, Meriden, Conn. LB **$3,591,025** (6 bidders), 16,101 ft. divided hy., c. conc. 24 ft. wide each side 60 ft. earth divisior, 8 bridges, Sec. Scranton-Binghamton Thruway (Proj. 819-2) FAI Greenfield, Benton and Lenox Twps. Lackawanna and Susquehanna Counties. CD 9/11.

▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg.

Pa.—**James D. Morrissey, Inc.**, 9119 Frankford Ave., Phila. 14, Pa. CA **$2,944,312**. 18,232 ft. divided hy., c. conc. 24 ft. wide each side divisor, 10 bridges, T.R. 152 Cheltenham and Springfield Twps.;

Pa.—**John E. Boyer**, R.D. 2, Washington, Pa. CA **$595,088**. 21,084 ft. crushed aggreg. base with bit. surf. 22 ft. wide; 2 bridges, W. Pike Run and Fallowfield Twps., Washington Co. Bids Aug. 29, awarded Sept. 26. CD 9/3, under LB.

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

James D. Morrissey, Inc., 9119 Frankford Ave., Phila. 14, Pa. CA **$3,306,849**. 27,717 ft. divided hy. c. conc. 24 ft. wide each side earth divisor, 5 bridges, Wind Gap By-Pass. L.R. 796 (1) (Proj. 723-1), Plainfield, Hamilton and Ross Twps. Monroe and Northampton Counties. Bids Aug. 29, awarded Sept. 26. CD 9/3, under LB.

BUILDINGS—LB & CA

▲ **Madway Engineers & Contractors**, 107 Aberdeen Ave., Wayne, Pa. Separate Contracts. **$7,500,000**. RESIDENTIAL DEVELOPMENT (500) Welsh Rd., etc., PHILA., PA.

▲ A. W. Rosenberry, Kirklyn, Pa. Separate Contracts. $3,000,000, RESIDENTIAL DEVELOPMENT (75), WESTTOWN, PA. John B. Thomson, Wayne, Pa., archt.

SOUTH

BUILDINGS—LB & CA

▲ **Blaw-Knox Co.**, 300-6th Ave., Pittsburgh, Pa., CA Est. **$10,000,000**, design and construct PLANT to produce vinyl chloride monomer and polymer, CALVERT CITY, KY. Cumberland Chemical Corp. (Air Reduction Co., Inc. and Mastic Tile Corp. of America), 150 E. 42nd St., New York, N. Y.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **O., Cleveland**—PARKING LOT—BA 10/16—City, City Hall, underground parking lot under Mall. $4,000,000-$5,000,000. Plans deposit $100. Extended date. H. K. Ferguson Co., 1783 E. 11 St., Zone 14, engr. CD 9/3.

HEAVY CONSTRUCTION—LB & CA

▲ **C & C Constr. Co.**, 4625 Industrial Rd., Fort Wayne, Ind., LB **$3,215,000**, est. $3,875,000 (6 bidders), Contract A, sewage disposal sys., WARREN, O. City of Warren, City Hall, Warren, O. Bids Sept. 25. CD 9/3.

▲ **MICHIGAN**—State Hy. Dpt., John C. Mackie, hy. comr., Stevens T. Mason Bldg., Lansing,

L. W. **Edison Co.**, 3134 Midland Dr. S.E., Grand Rapids, Mich., CA **$3,175,402**, grading, drainage structures, dual 24-ft. concrete pavement ramps and 4 bridges 8.674 mi. US-16 relocation from Whitneyville Rd., Whitneyville, FAI Proj. BI B1 024 C2-RN (I C4-2-11 BI B1 of 41 8-5 C1 RN BI B1 of 4-13-5 CL-RN BUB 2 of 41-13 5 C1 RN BI B3 of 41-13-5 C1-RN, Kent Co. Bids Sept. 3. CD 9/15, under LB.

BUILDINGS—LB & CA

▲ **George Fuller Co.**, 111 W. Washington St., Chicago, Ill., CA **$15,000,000**, OFFICE building bounded by Wacker Dr. and Adams, Monroe and Chicago River, CHICAGO, ILL. Adams Monroe Wacker Corp., c/o Arthur Rubloff & Co., 100 W. Monroe St., Chicago, Ill. Hartford Fire Insurance Co., lessee, Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill., archt. CD 9/29.

▲ **Paschen Contractors Inc.**, 2739 N. Elston Ave., Chicago, Ill., LB **$3,000,000**, 2 story, 30,000 sq. ft. FOUNDLING HOME, 1720 W. Polk St. CHICAGO, ILL. Chicago Foundling Home, 15 S. Wood St., Chicago, Ill. Bids Sept. 15. CD 9/11.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—LB & CA

▲ **TEXAS**—State Hy. Dpt., Austin,

Tex.—**Strain Bros., Inc.**, P.O. Drawer 1631, San Angelo, Tex. CA **$268,524**, grade, etc. 17.276 mi. Hy. US 84 and 70, Proj. F 640 (7) F 503 (12) F 503 (13) F. 568 (23) Bailey and Lamb Counties; CA **$505,422**, grade, structures, etc. 8.587 mi. Hy. US 277 and SH 70. Proj. DS 213 (4) Coke Co.;

Tex.—**Collins Constr. & L. H. Lacy Co.**, Box 1192, Austin, Tex. CA **$1,942,308**, foundation course, etc. 6.011 mi. Hy. IH 35 Proj. I 35-4 (17) 317 I 35-4 (6) 315, McLennan and Falls Counties;

Tex.—**Stuckey Constr.**, Charles B. Jones & Concrete Structures, Inc., Box 1645, Wichita Falls, Tex. CA **$1,941,239**, grade, etc. 2.052 mi. Hy. US 287 and Spur 325, Proj. U. 3 (11) Wichita Co.;

Tex.—**Killian-House Co.**, 4600 Broadway, San Antonio, Tex. CA **$1,484,235**, grade, etc. 6.715 mi. Hy. Loop 13, Proj. I S10-4 (8) 576, Bixar Co.;

Tex.—**F&C Engineering**, P.O. Box 2426, Houston, Tex. CA **$1,487,358**, grade, etc. 8.526 mi. Hy. US 59, Proj. F 514 (26) F.FG 514 (27) 514 (28) Harris and Fort Bend Counties;

Tex.—**Uvalde Constr. Co.**, Box 10286, Dallas, Tex. CA **$505,649**, widen concrete pavement, etc. 7.078 mi. Hy. US 87, Proj. DF 385 (23) Ellis Co.;

Tex.—**Trinity Builders & Elmer C. Gardner**, Box 3024, Houston, Tex. CA **$2,732,309**, grade, etc. 1.381 mi. Hy. IH 10, Proj. I 10-7 (13) 735, Harris Co. Grand total $11,227,044. CD 9/19, under LB.

FAR WEST

BUILDINGS—LB & CA

▲ **Erickson-Campbell & Assocs.**, 800 R St., Sacramento, Calif. CA **$4,000,000**. 3 story, bsmnt., Type I constr. 88 x 227 ft. main BANK between 7th and 8th Sts., incl. 160 x 320 parking lot, SACRAMENTO, CALIF. Bank of America, National Trust & Savings Assn., 300 Montgomery St., San Francisco, Calif. Bids Sept. 17 awarded Sept. 24. CD 9/8.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways **$44,000**; other public works $73,000: industrial buildings **$93,000**; other buildings **$344,000**. Also Foreign projects of $100,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction
(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Belgian Congo**—BA 10/29—Comptable des Finances du Gouvernement General Batiment Administratif, Avenues Pierre Ryckmans and Martin Rutten, Leopoldville, Kalina, constr. of K.117 section existing Thysville Rd. $4,800,000. Plans deposit $300.

HEAVY CONSTRUCTION—LB & CA

▲ **Sir McAlpine Sons (Rhodesia) Ltd.**, Salisbury, Rhodesia, CA **$5,600,000** Kyle Dam to form 20,000 acre lake to feed 28 mi. concrete canal for irrigation, SOUTHERN RHODESIA, AFRICA. Govt., South Rhodesia, Salisbury, Africa. Andre Coyne, 91 Rue St. Lazare, Paris 9, France, engr.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Oakland**—East Bay Municipal Utility Dist., 2130 Adeline St., 3.5 mi. Lafayette Tunnel from Lafayette Filter plant to Orinda Filter Plant to transport water from Mokelumne River to San Pablo Reservoir. Kaiser Engineers, Div. Henry J. Kaiser, 1924 Broadway, Oakland, will make preliminary report and estimates. CD 6/9.

SEWERS, WASTE DISPOSAL

▲ **Conn., Groton**—Town, Bd. Selectmen, Poquonock Bridge, sewage treatment paint, main sewer, pumping facilities, **$4,481,000**. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., consult. engrs.

STREETS AND ROADS

▲ **DELAWARE**—State Hy. Comn., Dover,

Kent Co. — limited access dual highway bypassing Dover Air Force Base, **$4,160,000**. Ed. Leuw, Cather & Brill 202 E. 44th St., New York, N. Y.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Chelmsford-Tyngsboro—hy. extension-Rte. 3 from Drum Hill to Westford Rd.; wid'n. Westford Rd. to Tyngsboro Center. **$6,000,000**. Universal Engineering Corp., 150 Causeway St., Boston, Mass., engrs. CD 6/26.

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany,

Westchester Co.—rebuild and modernize 14 mi. Taconic State Parkway from Hawthorne Circle north to Bear Mountain Parkway. **$16,000,000**.

▲ **OHIO**—State Hy. Dpt., Columbus zone 15.

Hamilton Co.—22 mi. 4 lane limited access hy., bridges, Section 1, near Cornell Rd., Cincinnati, **$35,000,000**. Vogt, Ivers & Seaman, 34 W. 6 St., Cincinnati, consult. engrs.

▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg,

Dauphin and Lebanon Counties—17.89 mi. Int. Rte. 13 and 3 between point north of Harrisburg on Susquehanna River and Indiantown Gap. **$16,949,100**.

Lebanon, Schuylkill and Luzerne Counties — 65.12 mi. Int. Rte. 3 between Indiantown Gap and north of Drums. **$74,819,100**. Gannett, Fleming, Corddry, & Carpenter 600 N. 2nd St., Harrisburg, Pa., consult. engrs. R. A. Farley, c/o owner, ch engr.

EARTHWORK, WATERWAYS

▲† **Alabama**—U. S. Eng., 2301 Grant St., Mobile, flood control, Tombigbee River, **$19,311,000**, (no appropriation).

▲† **Alaska**—U. S. Eng., Air Mail and Teletype, Anchorage, dredging Cook inlet. **$5,199,200** appropriated.

▲† **Arizona**—U. S. Eng., 751 S. Figueroa St., San Angeles, Calif., Painted Rock Reservoir, Gila River, $7,000,000 appropriated. CD 9/5/57.

▲† **Arkansas**—U. S. Eng., P. O. Box 97, Memphis, Tenn., flood control, St. Francis River Basin, Mo. and Ark., **$35,674,000**, (no appropriation). CD 4/22/44, under Illinois-Louisiana.

▲† **California**—U. S. Eng., 751 S. Figueroa St., Los Angeles, Los Angeles County Drainage area **$18,500,000** appropriated. CD 9/10/57.

▲† **California**—U. S. Eng., 1209 8th St., Sacramento, Terminus Reservoir, Kaweah River, **$6,000,000** appropriated. CD 9/10/57.

▲† **California**—U. S. Eng., 1209 8th St., Sacramento, Success Reservoir, Tule River. **$4,000,000** appropriated. CD 9/10/57.

▲† **California**—U. S. Eng., 1209 8th St., Sacramento, flood control Sacramento River, **$3,000,000** appropriated, flood control, Sacramento River and minor tributaires. **$1,000,000** appropriated. CD 9/10/57.

▲† **California**—U. S. Eng., 1209 8th St., Sacramento, dredging Sacramento River Deepwater ship channel. **$6,000,000** appropriated.

▲† **Delaware**—U. S. Eng., 2635 Abbotteford Rd., Phila., Pa. imprv. Delaware River Anchorages. $24,447,000 (no appropriation). CD 12/31/52.

▲† **Florida**—U. S. Eng., P. O. Box 4970, Jacksonville, dredging Port Everglades Harbor. $6,683,000 (no appropriation).

▲† **Florida**—U. S. Eng. Box 4970, Jacksonville, imprv. Central and Southern Florida. $6,500,000 appropriated. CD 9/6/51.

▲† **Illinois**—U. S. Eng., 420 Locust St., St. Louis, Mo., flood control, Kaskaskia River, Clinton Co. $23,000,000 (no appropriation).

▲† **Illinois**—U. S. Eng., Clock Tower, Rock Island, flood control, Rock and Green Rivers. $6,996,000 (no appropriation).

▲† **Illinois**—U. S. Eng., 200 W. Bank Drive, Chicago, dredging Calumet-Sag Channel, $9,884,000 (no appropriation). CD 5/17/44.

▲† **Illinois**—U. S. Eng., P. O. Box 59, Louisville, Ky., flood control, Saline River, $5,272,000 (no appropriation).

▲† **Indiana**—U. S. Eng., P. O. Box 59, Louisville, Ky., flood control, Salt Creek, Monroe Reservoir, near Bloomington $4,359,000 (no appropriation).

▲† **Indiana**—U. S. Eng., P. O. Box 59, Louisville, Ky., flood control, Upper Wabash River, $45,500,000 (no appropriation).

▲† **Illinois**—U. S. Eng., 220 W. North Bank Dr., Chicago, Illinois Waterway, Calumet-Sag Channel, Pt. 1, $8,500,000 appropriated. CD 9/9/57.

▲† **Iowa**—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., flood control, Floyd River. $8,060,000 (no appropriation).

▲† **Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, flood control, Old and Atchafalaya Rivers. $28,200,000 (no appropriation).

▲† **Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, Mississippi River Gulf Outlet. $4,000,000 appropriated. CD 4/22/44.

▲† **Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, Gulf Intracoastal Waterway: Plaquemine-Morgan City alternate route. $6,500,000 appropriated. CD 9/10.

▲† **Maryland**—U. S. Eng., 24th and Maryland Ave., Baltimore, Zone 18, imprv. Baltimore Harbor. $28,361,000 (no appropriation).

▲† **Massachusetts**—U. S. Eng., 150 Causeway St., Boston, hurricane-flood control imprvs. New Bedford-Fairhaven and Acushnet. $10,480,000 (no appropriation).

▲† **Massachusetts**—U. S. Eng., 150 Causeway St., Boston, flood control, North Adams, Hoosic River. $[illegible]0,000. appropriated. CD 9/9.

▲† **Michigan**—U. S. Eng., 1101 Washington Blvd., Detroit, flood control, Saginaw River. $16,085,000. (no appropriation).

▲† **Michigan**—U. S. Eng., 1101 Washington Blvd., Detroit, flood control, Grand River. $9,825,000. (no appropriation).

▲† **Michigan**—U. S. Eng., 1101 Washington Blvd., Detroit, flood control, Kalamazoo River in Kalamazoo. $5,358,000 (no appropriation).

▲† **Michigan**—U. S. Eng., 600 E. Jefferson St., Detroit, imprv. Great Lakes connecting channels. $25,500,000 appropriated. CD 9/10.

▲† **Minnesota**—U. S. Eng., 1217 Post Office & Custom House, St. Paul, flood control, Mississippi River, St. Paul and South St. Paul, $5,705,500 (no appropriation).

▲† **Missouri**—U. S. Eng., 420 Locust St., St. Louis Zone 2, Joanna Reservoir in Salt River, near Joanna. Total est. $30,000,000. $50,000 appropriated for planning.

▲† **Nebraska**—U. S. Eng., 1709 Jackson St., Omaha. Zone 2, flood control, Salt Creek and tributaries, near Lincoln. $13,314,000. (no appropriation).

▲† **New Jersey**—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., beach erosion, Atlantic Coast of New Jersey. $6,755,000 (no appropriation).

▲† **New Mexico**—U. S. Eng., P. O. Box 1538, Albuquerque, flood control, Rio Grande at Sorocco, $3,102,700. (no appropriation), flood control, Pecos River at Carlsbad., $1,791,200. (no appropriation).

▲† **New York and New Jersey**—U. S. Eng., 111 E. 16th St., New York, Zone 3, dredging New York and New Jersey channels. $5,420,000 appropriated. CD 9/9.

▲† **New York and Pennsylvania**—U. S. Eng., 24th St. and Maryland Ave., Baltimore 18, Md., flood control, Susquehanna River Basin. $30,000,000 (no appropriation).

▲† **New York**—U. S. Eng., 111 E. 16th St., New York, Zone 3, flood control, Lake Chautaugua, Jamestown. $4,796,000 (no appropriation). CD 12/30/43.

▲† **Ohio and West Virginia**—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., New Cumberland locks and dam, Ohio River, $10,000,000 appropriated. CD 9/28/56.

▲† **Ohio**—U. S. Eng., 600 E. Jefferson St., Detroit, Mich., imprv. Cleveland Harbor, Lake Erie $14,927,000. (no appropriation).

▲† **Ohio**—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., flood control, West Branch Mahoning River, $12,585,000. (no appropriation).

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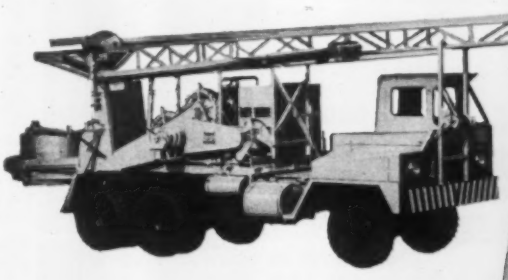

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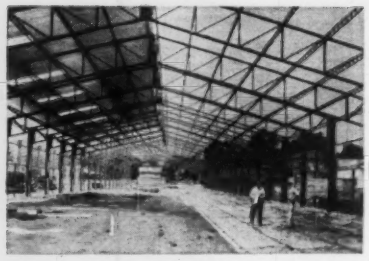

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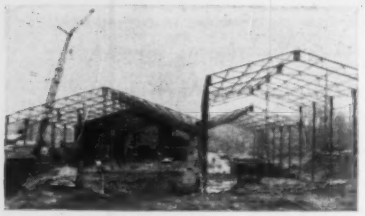

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▲† **Oregon**—U. S. Eng., Pittock Block, Portland Cougar Reservoir. $5,500,000 appropriated.

▲† **Oregon**—U. S. Eng., Pittcock Block, Portland, dredging Yaquina Bay, $19,800,000. (no appropriation).

▲† **Oregon**—U. S. Eng., Pittock Block, Portland, Hills Creek Reservoir, Middle Fork, Willamette River near Lowell, $13,000,000 appropriated.

▲† **Pennsylvania**—U. S. Eng., 925 New Federal Bldg., Pittsburgh, flood control Turtle Creek Basin. $13,417,000. (no appropriation).

▲† **Rhode Island and Massachusetts**—U. S. Eng., 150 Causeway St., Boston, Mass. hurricane-flood control, Naragansett Bay area Mass. and R. I. $11,500,000. (no appropriation).

▲† **South Dakota**—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., Oahe Reservoir, Missouri River, near Pierre. $38,800,000 appropriated.

▲† **Texas**—U. S. Eng., Box 1229, Galveston, hurricane flood control, Texas City $5,662,000 (no appropriation).

▲† **Texas**—U. S. Eng., Box 1229, Galveston, imprv. Matagorda Ship channel. $9,944,000 (no appropriation).

▲† **Texas**—U. S. Eng., Box 1229, Galveston, navigation, Port Aransas-Corpus Christi Waterway $6,272,000. (no appropriation).

▲† **Texas**—U. S. Eng., Box 1229, Galveston, imprv. Galveston Harbor-Houston Ship Channel. $17,196,000 (no appropriation).

▲† **Wisconsin**—U. S. Eng., 517 E. Wisconsin Ave., Milwaukee, flood control, Eau Galle River, $6,690,000, (no appropriation.)

AIRPORTS

▲† **Fla., Orlando**—OPERATIONAL SUPPLY FACILITIES—U. S. Eng., P.O. Box 4970, Jacksonville, operational training supply facilities, utilities, McCoy Air Force Base. $15,137,000. CD 1/31/51.

PUBLIC BUILDINGS

▲ **Calif., Lancaster**—SCHOOL—Antelope Valley Jt. Union High School Dist., 100 E. Lancaster Blvd., plans by H. L. Gogerty, 3123 W. 8th St., Los Angeles, Quartz Hill High School, Palmdale. $3,946,000. CD 7/10/56.

▲† **Conn., Hartford**—FEDERAL OFFICE—General Services Admin., Wash. 25, D. C., plans by Ebbets, Frid & Prentice, 892 Asylum Ave., Hartford, and Douglas Orr 111 Whitney Ave., New Haven, 295,000 sq. ft. air conditioned Federal Office Bldg., Main St., $8,000,000. CD 2/6/56.

▲† **Fla., Miami**—FEDERAL OFFICE—General Services Admin., Peachtree 7th Bldg., Atlanta, Ga., plans by Steward-Skinner Assocs., 1102 DuPont Plaza Center, and Giller, Payne & Waxman, 4100 N. Miami Ave., 15 story federal office building. $8,500,000. CD 1/30.

▲ **Ill., Chicago**—HOSPITAL—State, Springfield, plans by Friedman-Alschuler & Sincere, 223 W. Jackson St., Chicago, and State Architect, Springfield, 576 bed pediatric hospital for mentally deficient children, $5,500,000. CD 12/11/51.

▲ **La., New Orleans**—HOUSING—New Orleans Housing Auth., City Hall, low-rent housing, Donner Canal, Whitney Ave., Hendee St. and an industrial tract, Algiers. $15,396,835.

▲† **N. C., Camp Lejeune**—CAPEHART HOUSING—P. Wks. Office, Fourth Naval Dist., Bldg. 1, Naval Base, Phila. 12, Pa., plans by Leif Valand, 2016 Cameron St., Raleigh, 800 unit Capehart housing, Marine Corps Base. $12,400,000. Bids about October.

▲ **S. C., Anderson**—HOSPITAL—Anderson County, Anderson, plans by the McPherson Co., 408 S. Main St., Greenville, Anderson Memorial Hospital addns. $4,000,000. Bids in March. CD 7/20/53.

COMMERCIAL BUILDINGS

▲ **Alta., Edmonton**—HOSPITAL—City, City Hall, ratepayers to vote on money bylaw Oct. 15, Royal Alexandra Hospital addn. $6,000,000. CD 9/5.

▲ **Calif., Los Angeles**—OFFICE—Tishman Realty & Constr. Co., Inc., 3460 Wilshire Blvd., plans by Victor Gruen & Assocs., 135 S. Doheny St., Beverly Hills, and Daniel, Mann, Johnson & Mendenhall, 3325 Wilshire Blvd., Los Angeles, 22 story office bldg. $10,000,000. Constr. January 1959.

▲ **Fla., Tampa**—RESIDENCES—Everina Homes, Inc., 4261 Henderson Blvd. and P. O. Box 10593, 1,000 residences, W. Hillsboro Ave. $8,000,000.

INDUSTRIAL BUILDINGS

▲ **W. Va., Institute**—PLANT—Union Carbide Chemical Co., Div. Union Carbide Corp., 30 E. 42 St., New York, N. Y., plant to produce oxygenated chemicals.

UNCLASSIFIED

▲ **Mich., Detroit**—PORT FACILITIES—Bd. Supervs. Wayne Co., City-County Bldg., $7,100,000 bond election Nov. 4, port facilities.

▲ **Pa., Phila.**—SUBWAY—Dpt. Procurement, City Hall Annex, South Broad Street Subway Exten. $15,532,000. Constr. 1960. CD 3/25/57.

▲ **Wash., Seattle** — PARK IMPRVS. — City, City Hall, $3,500,000 bond election Nov. 4, park imprvs. CD 6/9/54.

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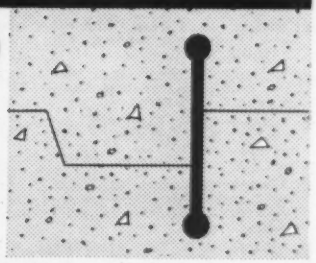
WATERSTOPS
FOR MASONRY CONSTRUCTION JOINTS



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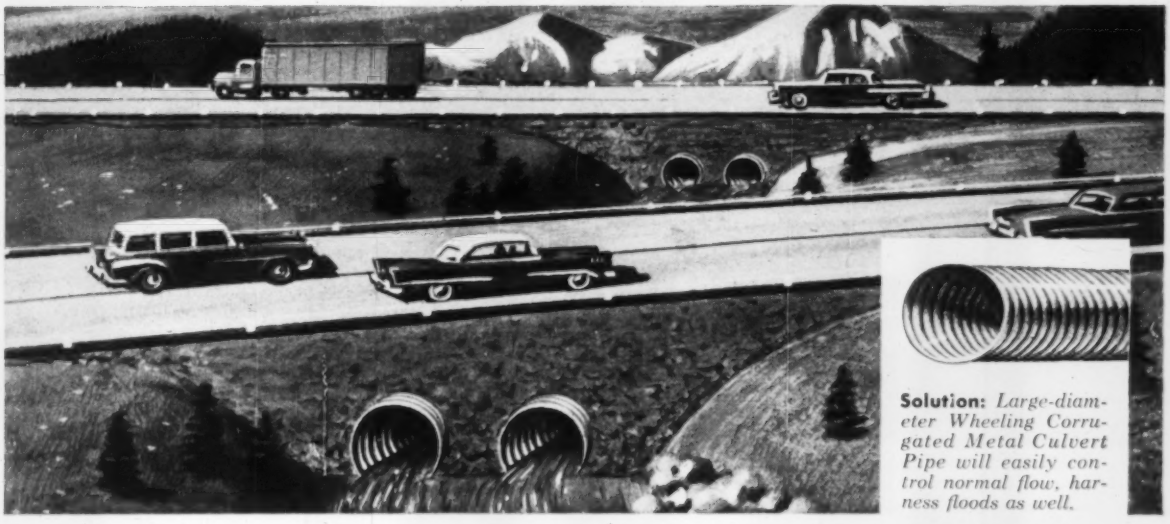

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Wheeling

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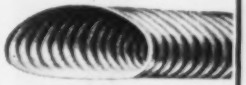

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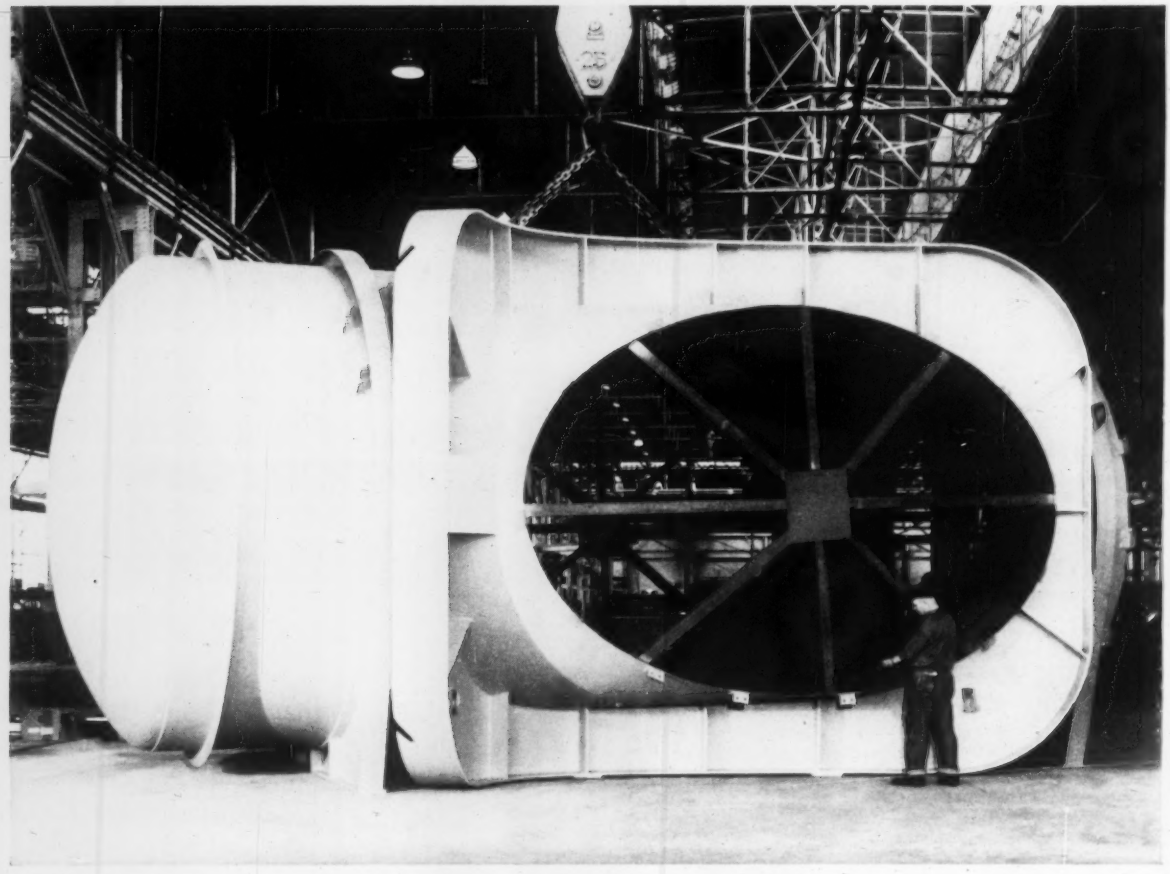

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MAHON

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 15 Massachusetts

STREETS AND ROADS

October 14 Connecticut October 15, 21 Massachusetts

BUILDINGS—LB & CA

▲† **Anthony Grace & Sons Inc.**, 151-45 Sixth Rd., Whitestone, N. Y., LB **$2,653,022**. 197 Capehart HOUSING UNITS, Topsham Air Force Base, ISB-19-603-59-15, TOPSHAM, ME. Base Procurement Office, Otis Air Force Base, Falmouth, Mass. Kelly & Gruzen, 80 Fifth Ave., New York 3, N. Y., archts. Bids Sept. 17. CD 8/18.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 14 Maryland October 17 Pennsylvania

STREETS AND ROADS

October 14 Maryland October 17 Pennsylvania

October 21 New Jersey October 30 New York

▲ **New York**—BA 10/30—Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York, Zone 19, constr. superstructures for American Rapids Bridge and approaches involving 1,600,000 lb. structural carbon steel, 2,750,000 lb. structural low alloy steel, etc. Niagara Falls, Niagara Co. Spec. No. 5826 B Niagara, Contr. No. N15. Plans deposit $10. Praeger-Kavanagh, 126 E. 38th St., New York, Zone 16, engrs. CD 8/15.

▲† **N. Y., Watervliet**—MODERNIZATION OF FACILITIES—BA 10/30—U. S. Eng., 111 E. 16th St., New York, Zone 3, modernization of facilities, electrical distr. sys. Phase I & II, Watervliet Arsenal, ENG.-30-075-59-9. $2,000,000-$3,000,000.

BUILDINGS—BA

▲† **N. Y., New York**—POST OFFICES—BA 10/17—General Service Admin., Business Service Center, Region 2, 250 Hudson St., Zone 13, concrete, steel fdn., concrete, masonry, brick and aluminum facing post office and annex, 33rd St. and 8th Ave.; post office, Morgan Annex, 29th St. and 9th Ave. CD 5/20.

▲† **N. Y., New York**—OFFICE—BA 10/31—General Services Admin., Business Service Center, 250 Hudson St., New York 13, constr. (except elevator plant) 12 story bldg. for United States Mission to United Nations Building, United Nations Plaza and E. Forty-Fifth St, $3,300,000. Kahn & Jacobs, 2 Park Ave., New York 16, N. Y., Kelly & Gruzen, 10 Columbus Circle, New York 19, N. Y., archts.-engrs. CD 2/17/56.

HEAVY CONSTRUCTION—LB & CA

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg, Bids opened 9/25,

Pa.—**Adam Eidemiller, Inc.**, R. D. 4, Greensburg, Pa. LB **$2,064,814** (12 bidders) 28,742 ft. divided hy. c. conc. 24 ft. wide each side of earth median area, 1 bridge, T.R. 51. Rostraver, Forward & Elizabeth Twps. Westmoreland and Allegheny Counties;

Pa.—**L. M. Hutchison**, R. D., Mount Union, Pa. LB **$1,059,949** (3 bidders) 22,130 ft. divided hy. crushed aggreg. base with bit. surf. 24 ft. wide each side divisor. 6 bridges. T.R. 545. College Twp., State College Boro., Centre Co.;

Pa.—**J. Robert Bazley, Inc.**, Box 1214, Pottsville, Pa. LB **$1,243,714** (4 bidders) 6,134 ft. divided hy. c. conc. 24 ft. wide each side divisor 2 bridges. L.R. 793 (1), Reading City, Wyomissing & W. Reading Boros, Berks Co. CD 9/11.

▲† **John C. Grimberg Co., Inc.**, 7624 Old Georgetown Rd., Bethesda, Md., and **Harrison Electrical Contractors, Inc.**, 1344 Maryland Ave. N. E., Wash., D. C. CA **$2,316,000**, air-conditioning and electrical equipment, at U. S. Government Printing Office, WASH., D. C. General Services Admin., 7 and D Sts. S. W., Wash., D. C. Bids Aug. 8. CD 8/13, under LB.

BUILDINGS—LB & CA

▲ **Leon D. DeMatteis Constr. Co.**, 827 Elmont Rd., Elmont, N. Y., CA **$2,248,000**. 16 story DORMITORY, Fleet and Willoughby Sts., BROOKLYN, N. Y. Long Island University, 385 Flatbush Ave. Exten., Brooklyn, N. Y. Bids Sept. 12. CD 3/17.

▲ **Galbreath Corp.**, 150 E. 42 St., New York 17, N. Y. will not construct a 60 story OFFICE, 31 W. 51 St. at 6 Ave., NEW YORK, N. Y. The **$40,000,000** contract with Turner Construction Co., 150 E. 42 St., is voided. The site has been sold to Webb & Knapp, Inc., 383 Madison Ave., New York, N. Y. who is reported to be planning an office or hotel there. CD 1/30, under CA.

▲ **Larson & Olsen Constr. Co.**, 65 Central Ave., Hackensack, N. J. Own Forces. **$2,300,000**, 300,000 sq. ft. INDUSTRIAL PARK, New Bridge Rd., BERGENFIELD, N. J.

▲ **Mahony-Troast Constr. Co.**, 790 Bloomfield Ave., Clifton, N. J., CA Est. **$3,000,000**, HOSPITAL, NEWARK, N. J. Bd. Trustees St. James Hospital, 142 Elm St., Newark, N. J. Bids Sept. 19. CD 9/5.

▲ **Volpe Constr. Co.**, 261 Constitution Ave. N.W., Wash., D. C., CA **$4,000,000**, constr. 8 story, brick, cinder block, concrete APARTMENTS, 241 units, 2900 39 St. N.W., WASH., D. C. Realest Corp., 25 Broad St., New York, N. Y. Berla & Abel, 2000 P. St. N.W., Wash., D. C., archts. CD 12/3/57.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 17 Kentucky

STREETS AND ROADS

October 17 Kentucky October 28 Florida

BUILDINGS—BA

▲ **Ky., Louisville**—OFFICE—BA About 10/25—Standard Gravure Corp., 525 W. Broadway, Zone 1, (selected list of bidders) 4 story block office, Chestnut St., between 6th St. and Armory Pl. $3,500,000. Hartstern Louis & Henry, McDowell Bldg., Zone 2, archts. E. R. Ronald & Assoc., 554 S. 3rd St., Zone 2, engrs. CD 5/15.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Commonwealth of Va., Dpt. Hys., 1221 E. Broad St., Richmond, bids opened 9/24,

Va.—**Harrison Constr. Co.**, Alcoa, Tenn. LB **$2,111,625** (11 bidders) grade, drain 6.847 mi. Rte. 81, Contr. No. 1, State Proj. 0081-095-038G-1, B11, B12, B15, B17, B18, B22, Fed. Proj. I-81-1(15)14, Washington Co.;

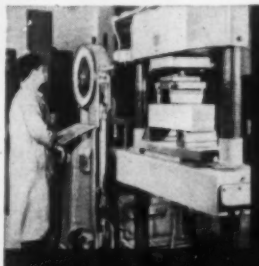
Va.—**Ralph E. Mills Co., Inc.**, Box 513 Salem, Va., LB **$299,851** (9 bidders) bit. S. T. and overpass 1.84 mi. Rte. 91, State Proj. 0091-0095-009-012-013-014-016, Old State Proj. 4495-09-12-13-14-16, Fed. Proj. S-SG-923(4), Washington Co. CD 1/9.

▲ **FLORIDA**—State Rd. Dpt., Tallahassee,

Fla.—**Ewell Engr. & Contr. Co.**, Box 791, Lakeland, Fla. CA **$630,000**, 8½ in. rock base with Type I b. conc. surf. course and binder course between SR 43 and Brandon, FA Proj. DF-033-1 (19) Job No. 1011-601 SR 60, Hillsborough Co.;

Fla.—**Duval Eng. & Constr. Co.**, Box 1588, Jacksonville, Fla., CA **$2,147,988**, 8 in. c. conc. sect. between Beaver St. and 8 St. (Jacksonville Expressway) (6 lane constr.) FAI Proj. 1-95-5 (9) 344, Job No. 7202-481 SR Nos. 5, 10-a and 15, SR Nos. 5, 1-0-A and 15, Duval Co. CD 8/4, under LB.

(Continued on page 72)



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(Continued from page 69)

▲ **ALABAMA**—State Hy. Dpt., Montgomery, Bids opened 9/26.

Ala.—**Moss-Thornton Co., Inc.**, Box 127, Leeds, Ala., LB **$2,629,085**, 7.26 mi. grading, draining US 78 from NW of Eden to Riverside on Interstate Rt. 20, St. Clair Co.;

Ala.—**Blount Bros. Constr. Co.**, 79 Commerce Montgomery, Fla., LB **$2,840,272** (3 bidders) grading, draining 3.22 mi. on Belt Line Hy. from Hy. 90 to point near old Shell Rd., Mobile Co.;

Ala.—**Ashville Constr. Co., Inc.**, London Rd., Baltimore St., Ashville, N. C. and **Phillips Jordan**, Robbinsville, N. C., LB **$1,931,741**, 10.014 mi. grading, draining Ft. Payne-Rogers Rd. on Interstate Rt. 59, DeKalb Co.;

Ala.—**Floyd S. Milford**, 3732-5th Ave. N., Birmingham, Ala. LB **$601,548**, 3.869 mi. grading, draining from Ala. 69 to US 278 on Interstate Rt. 65, Cullman Co. CD 9/17.

▲ **LOUISIANA**—State Dpt. Hys., Rm. 307, Hy. Office Bldg., Baton Rouge, Bids opened 9/24.

La.—**Hall & Holland**, Box 38, Montgomery, La., LB **$209,938** (2 bidders), aggreg. type or soil cement base course bit. surf. treatment and related work 8.077 mi. Mt. Carmel-Peason Hy., Rte. LA 118, SP Nos. 117-01-06 and 117-02-05; FASP No. S-560(1), Sabine Parish; LB **$513,522** (2 bidders), aggreg. type or soil cement base course bit. hot mix surf. and related work 6.914 mi. Cotton Valley-Sareota Hy., Rte. LA 7, SP Nos. 86-01-16 and 86-92-10; FASP No. S-215(3), Webster Parish; LB **$367,039** (2 bidders), aggreg. type or soil cement base course, bit. surf. treatment 8.635 mi. Kisatchie-Bellwood Hy., Rte. LA 117, SP No. 114-02-12; FAP No. FH 45-D; LB **$269,919** (2 bidders), wid'n. existing concrete pavement surf. with bit. hot mix 4.791 mi. Winnfield-Clarence Hy., Rte. LA-US 84. SP No. 22-01-05, FASP No. S-203(4), both in Natchitoches Parish; LB **$374,525** (2 bidders), grading, drainage structures, overpass structure, wid'n. existing concrete pavement surf. with bit. hot mix 9.28 mi. Winnfield-Clarence Hy., Rte. LA-US 84. SP No. 22-02-15 FAP Nos. USG-203(5) and S-203(3), Winn Parish; LB **$245,974** (2 bidders), aggreg. type or soil cement base course, bit. surf. treatment 9.036 mi. Melville-Palmetto Hy., Rte. LA 10, SP No. 219-07-13, FASP No. S-164(2), St. Landry Parish; LB **$162,847** (2 bidders), shaping roadway, aggreg. type or soil cement base course bit. surf. treatment 9.593 mi. Coldwater-Pine Ridge Hy., Rte. LA 1234, SP No. 359-05-03, Winn Parish;

La.—**W. H. Patterson & Co.**, Joplin Ave., Baton Rouge, La., LB **$580,042** (2 bidders), wid'n. existing roadway, bit. hot mix application 9.546 mi. Lockport Cut Off Hy., Rte. La. 1, SP Nos. 64-06-19 and 64-05-26; Lafourche Parish;

La.—**Reynolds & Williams**, Commonwealth National Bank Bldg., Shreveport, La., LB **$2,482,358** c. conc., grade separation structures 4.999 mi. Choudrant-Calhoun Hy. Rte. L-20, SP No. 740-00-26, FAP No. I-20-3(6)98, Ouachita Parish;

La.—**Campbell Constr. Co.**, foot of Milam St., Shreveport, La., LB **$1,002,906** (2 bidders), wid'n. existing concrete pavement surf. with bit. hot mix 13.282 mi. Kaplan-Abbeville Hy., Rte. LA 14. SP Nos. 55-04-08 & 55-05-12 FASP Nos. S-102(5) S-197(3), Vermilion Parish;

La.—**Newsom Bros.**, Columbia, Miss., LB **$801,259** wid'n. existing bit. pavement, bit. hot mix surf. 8.011 mi. Varnado-Mississippi State Line Hy. Rte. LA 21. SP No. 30-04-16 FAP No. F-244(3), Washington Parish;

La.—**G. E. Steed**, Springhill, La., LB **$555,079** (2 bidders), aggreg. type base course, bit. mixtures 5.559 mi. Jena-Whitehall Hy., Rte. LA-US 84, SP No. 22-05-23 FAP No. F-153(3) Lasalle Parish. CD 9/16.

▲ **TENNESSEE**—State Hy. Dpt., Nashville,

Tenn.—**Peter Kiewit Sons Co.**, 1024 Omaha National Bank Bldg., Omaha, Neb. CA **$4,169,445**. bridge, approacres across French Broad River Int. Rte 40 State Rte 9. Dandridge, Jefferson Co.;

Tenn.—**Foster-Creighton Co.**, 1st American National Bank, Nashville, Tenn. CA **$818,257**, concrete deck, handrail, bridge, drainage sys. and lighting for new bridge across Tennesse River. 519 mi. Chattanooga, Hamilton Co.;

Tenn.—**Oman Constr. Co.**, Acklen Park, Nashville, Tenn. CA **$1,443,114**, 10 bridges, grade, drain approaches 0.953 mi. to directional interchange section Int. Rte No. 40 between State Rte No. 95 (White Wing) and Little Turkey Creek Proj. I-40-7 (6) 375, Pt. 11 (Old I-503 (11) Loudon and Knox Counties. Grand total $6,430,816. Bids Sept. 19, awarded Sept. 25. CD 9/24, under LB.

▲ **TENNESSEE**—State Hy. Dpt., Nashville,

Tenn.—**P. G. Young & Sons, Inc.**, Lamont, Johnson City, Tenn. CA **$1,045,537**, grade, pave, etc. constr. 1 set bridges 1.4 mi. Interstate Rte 85. Proj. I-85-1(3) 75, Bristol, Sullivan Co.;

Tenn.—**John L. Burns, Inc.**, 2720 Nolensville Rd., Nashville, Tenn. CA **$544,857**, grade, drain, surf. etc. 5.2 mi. constr. 2 concrete girder bridges. Athens-Etowah, Proj. F-039-1 (1) McMinn Co.;

Tenn.—**J. A. Hadly & Pioneer Constr. Co.**, Humboldt, Tenn. CA **$1,493,778**, surf. and 4 bridges State r-3, State Rte 21, .335 mi. Proj. F-003-4 (2) Union City, Obion Co.;

Tenn.—**L&M Constr. Co.**, 843 Vance Ave., Memphis, Tenn. CA **$3,286,135**, grade, and constr. 13 bridges 2.7 mi. section expressway around Memphis, Proj. I-A40-1 (7) 18, Shelby Co. Grand total $6,370,307. Bids Sept. 19, awarded Sept. 25. CD 9/24, under LB.

BUILDINGS—LB & CA

▲ **J. C. Coe Constr. Co.**, Builders Bldg., Charlotte, N. C., LB **$4,048,673**, PUBLIC SAFETY BLDG., NORFOLK, VA. City, City Hall, Norfolk, Va. Bids Sept. 25. CD 8/12.

▲ **Bradford Builders Inc.**, 132 Aragon Ave., Coral Gables, Fla., CA Approx. **$5,000,000**, MOTEL, (Pier 66), 2301 SE 17 St., FORT LAUDERDALE, FLA. Phillips Petroleum Co., 720 SW St., Bartlesville, Okla. Bids Aug. 18. CD 9/9, under LB.

▲ **The Auchter Co.**, Box 1193, Jacksonville, Fla., LB **$5,000,000** (13 bidders), 15 story, CITY HALL, JACKSONVILLE, FLA. City Comn., City Hall, Jacksonville, Fla. Bids Sept. 24. CD 9/4.

▲ **J. A. Jones Constr. Co.**, Church St., Nashville, Tenn., LB **$3,017,000**, est. $2,837,784, 380 unit Negro HOUSING, MEMPHIS, TENN. Memphis Housing Auth., 700 Adams St., Memphis, Tenn. CD 7/15.

▲ **Memphis Housing Auth.**, 700 Adams St., Memphis, Tenn. rejected bids July 31, 320 public HOUSING, Cump Blvd., MEMPHIS, TENN. LB **$3,737,033**. CD 8/25, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 14 Ohio

STREETS AND ROADS

October 14 Ohio

HEAVY CONSTRUCTION—LB & CA

▲ **INDIANA**—State Hy. Comn., John Peters, chn., State House Annex, Indianapolis,

Calumet Paving Co., Zionsville, Ind., CA **$2,732,016**, c. conc. pavement, Contr. R-4507; I-05-3 (10) 3, Shelby and Marion Counties, Bids July 29. CD 8/5, under LB.

▲ **MICHIGAN**—State Hy. Comn., Stevens T. Mason Bldg., Lansing,

Mich.—**A. Lindberg & Sons and Becco Constr. Co.**, Iron Mountain, Mich. CA **$1,183,930** (joint venture) dual 24 ft. concrete pave. 24 ft. b. conc. 3.882 mi. US-31 and 2 grade separation structures, Mackinaw City. FAI Act 1956, BI 16 092 C1 RN BI 16111 C1-RN BI 24071 03-RN (1 07-5 4) BI B1 16-11-4 C1-RN 16111 24071 BI B2 of 16 11-4 C1-RN 16092 (1 07-5 4), Emmet and Cheboygan Counties;

Mich.—**Denton Constr. Co.**, 20415 Mack, Grosse Pointe, Mich., CA **$1,349,355**, single and dual concrete pavement 7.662 mi. M-50 from US-23 and M-130 east, Monroe, DF 58042 C1-R DF 58042 C2-U (DF 209 7), Monroe Co.;

Mich.—**Pierson Contg. Co.** 200 Eddy Bldg., Saginaw, Mich., CA **$2,765,035**, dual concrete pavement 6.087 mi. Cross Rds., Interchanges and 6 bridges US-12 from Carmody Rd. BI 11017 C1-RN BI 11017 C2-RN (1 02-2 12) BM 11017 C4-RN BCS 11-88 C1 (S 906-1) BI B3 of 11-20 6-C1-RN BI B12 of 11-2-6 C1-RN BI B2 of 11-7-6-C1-RN BI BI of 11-20-6 C1 RN (C2-2 12) BI BI of 11-7-6 C1-RN BM B3 of 11-7-6 C1-RN, Berrien Co. Grand total $5,298,320 Bids Aug. 20. CD 8/29, under LB.

▲ **Michigan Sewer Constr. Co.**, 21720 W. Eight Mile Rd., Detroit 41, Mich., LB **$3,949,715**, Eight Mile Rd. storm drain, Southfield and Oak Park, incl. 111 lin. ft. 12 ft. open cut storm drain, 18,617 lin. ft. 3 ft. 6 in. to 12 ft. tunnel storm drains, 304 lin. ft. 3 ft. 6 in. open cut storm drain, 13 each manholes, 2 each junction chambers, 6 each drop inlets, PONTIAC, MICH. Oakland Co. Drain Comr., 550 S. Telegraph Rd., Pontiac, Mich. Bids Sept. 18. CD 8/18.

BUILDINGS—LB & CA

▲ **Alvin Homes**, 16573 Hummel Rd., Cleveland 30, O. Own Forces **$5,775,000**, 350 RANCH HOMES, southeast corner of Engle and Holland Rds., BROOK PARK, O.

Paschen Contractors, Inc., 2739 N. Elston Ave., Chicago, Ill., CA **$600,000**, 90x110 ft. STUDENT CENTER, 115 E. Delaware Place, CHICAGO, ILL. Fourth Presbyterian Church, 126 E. Chestnut St., Chicago, Ill. McClurg Shoemaker & McClurg, 39 S. LaSalle St., Chicago, Ill., archts.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 14 Iowa — October 17 Minnesota

STREETS AND ROADS

October 14 Colorado, Iowa — October 17 Minnesota

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul. Bids opened 9/26.

Minn.—**Johnson Constr. Co.**, Box 1002, Litchfield, Minn., LB **$6,718,885** (4 bidders), sand-grav. sub-base grav. base plant-mixed bit. surf. concrete paving bridges 6.7 mi. between 0.2 mi. east of Humboldt Ave. south at Bloomington limits and 0.75 mi. east of jct. 34th Ave. south in Bloomington on T. H. C. 94 and between east 86th St. in Bloomington and north limits of Richfield on T. H. 36, Hennepin Co.;

Minn.—**Park Constr. Co., Inc. and Arrowhead Engrs. & Constructors, Inc.** (joint venture), 5137 Ave. N. E., Minneapolis, Minn., LB **$1,901,727** (7 bidders) sand-grav., sub-base, grav. base, and bridges 2.2 mi. between 310 south of Little Canada Rd. and south end of Northern Pacific Railway Co. overhead on T. H. 35, Ramsey Co.;

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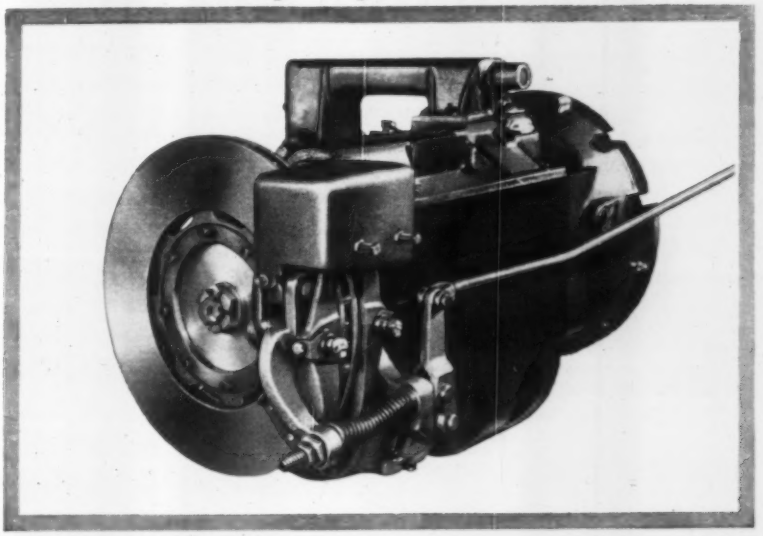

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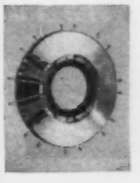

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Cu. In. Displacement	25 Cu. In.	23 Cu. In.	23 Cu. In.
Max. BMEP @ 3600 RPM RATING	84.5 P.S.I.	88.0 P.S.I.	86.1 P.S.I.
Max. BMEP @ 9 BHP @ 3600 RPM	79.2 P.S.I.	86.1 P.S.I.	86.1 P.S.I.
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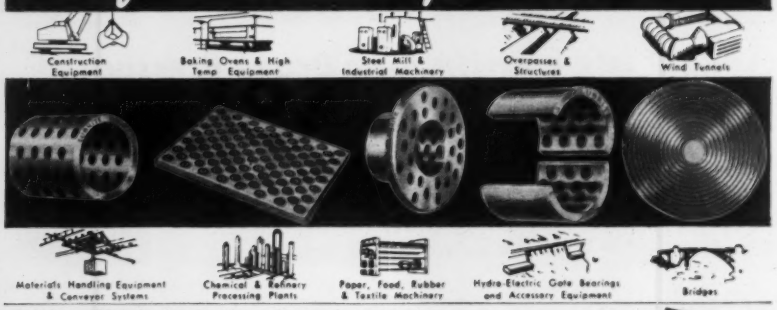
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191 AMORY STREET, BOSTON 30, MASSACHUSETTS

Minn.—Schultz & Lindsay Constr. Co., 204 Neima Bldg., Fargo, N. D., LB $940,344 (6 bidders), grav. base, concrete pavement, bit. surf. shoulders and bridges 1 mi. in Moorhead, incl. Bridges Nos. 9475 and 9476, Clay Co. CD 9/10.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 29 California

STREETS AND ROADS

October 24, Arizona October 29, 30 California

HEAVY CONSTRUCTION—LB & CA

▲† **M. M. Sundt Constr. Co. & Stolte, Inc.**, 8451 San Leandro Ave., Oakland, Calif., CA $7,856,557, SAGE technical facilities, Luke Air Force Base. ENG-04-353-59-1, PHOENIX, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Aug. 19. CD 8/22, under LB.

▲† **Guy F. Atkinson Co.**, 10 W. Orange Ave., South San Francisco, Calif., CA $7,360,599, est. $6,265,905, POWERHOUSE, Ice Harbor Lock and Dam, CIVENG-45-164-59-3, WASHINGTON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Sept. 18, awarded Sept. 29. CD 9/22, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Gordon H. Ball, Gordon H. Ball, Inc., Ball & Simpson and **Lew Jones Constr. Co.**, 685 Delaware St., Berkeley, Calif., CA $2,959,006 (joint venture) grading, paving 2.5 mi. 4-lane freeway and seven structures on State Sign Rte. 17 between Bascom Ave. and North 4th St., San Jose, IV-SC1-5-SJS,D. Santa Clara Co. Bids Sept. 17. CD 9/22, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Ukropina-Polich-Kral, P.O. Box 105, San Gabriel, Calif., CA $7,576,081, 4.9 mi. 8-lane divided freeway (Harbor Freeway) between 0.2 mi. north 124th St. and ½ mi. south 190th St., incl. 17 bridges, 10 retaining walls and 2 pumping plants, VII-L.A.-165-LA, A. Los Angeles Co. Bids Sept. 11. CD 9/16, under LB.

▲† **N. P. Van Valkenburg**, 1627 Chico Ave., El Monte, Calif., CA $2,403,000, roads and utilities at Naval Missile Facility, Point Arguello, Spec. 19441/58, POINT MUGU, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids Sept. 16, awarded Sept. 23. CD 9/18, under LB.

BUILDINGS—LB & CA

▲ **Rigby Constr. Co.**, 4304 S. 178 St., Seattle, Wash. Day Labor, $2,500,000, 177 HOUSES, Salt Air Hills, KENT, WASH.

▲ **Diversified Builders Inc.**, P.O. Box 877, Paramount, Calif. CA $4,790,000, general constr. 9 story, bsmnt., 542,000 sq. ft. OFFICE No. 2 and 7 story, bsmnt GARAGE, totaling about 274,000 sq. ft. for Dpt Finance. W.O. 3848GC-3 and W.O. 4001GC-7. LOS ANGELES, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Aug. 27, awarded Sept. 25. CD 9/2, under LB.

Sherwin Electric Service, 3229 Casitas Ave., Los Angeles, Calif. CA $972,356, electrical work for office bldg. (Los Angeles, Calif.). CD 9/4, under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 24 Nova Scotia

STREETS AND ROADS

October 15, 29 Ontario

HEAVY CONSTRUCTION—LB & CA

▲ **Henry J. Kaiser Co. of Canada Ltd.**, Dominion Square Bldg., Montreal, Que., **McNamara Constr. Co. Ltd.**, 42 Industrial St., Toronto, Ont., **The Tower Co., Ltd.**, 1509 McKay St., Montreal, Que. LB $3,973,350 (43 bidders) constr. hydrant refueling installation, incl. various bldgs. and services at Fort Churchill Air Force Base, FORT CHURCHILL, MAN. Defence Construction (1951), 56 Lyons St., Ottawa, Ont.

Henry J. Kaiser Co. of Canada, Ltd., Dominion Square Bldg., Montreal, Que. and **McNamara Constr. Co.**, 42 Industrial St., Toronto, Ont., LB $2,441,600 and $2,839,046 (alternate) (49 bidders) runway extens., taxiway and parking aprons and aerodrome lighting facilities at Fort Churchill Air Force Base (Fort Churchill, Man.).

▲ **Highway Paving Co., Ltd.**, 3701 Cote St. Michel Rd., Montreal, Que., CA $2,501,074, 200 x 9,600 ft. paved runway and taxiway, Montreal Airport, Dorval, MONTREAL, QUE. Dpt. Transport, Hunter Bldg., Ottawa, Ont. CD 8/27, under LB.

PUERTO RICO

HEAVY CONSTRUCTION—BA

▲† **Puerto Rico, Aguadilla**—HOUSING—BA 11/1—Procurement Officer, Ramey Air Force Base, repairs, imprvs. 995 Wherry Housing units, Ramey Air Force Base. CD 9/18.

BUILDINGS—LB & CA

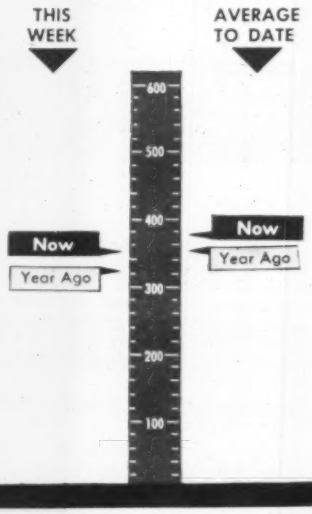
▲ **Metropolitan Builders, Inc.**, 1501 Ashford Ave., San Juan, Puerto Rico, CA $2,000,000 Ponce Intercontinental HOTEL, PONCE, PUERTO RICO. Ponce Hotel Corp., Ponce, Puerto Rico.

(Proposal Advertisement see pp. 88 and 89)

Construction Scoreboard

ACTIVITY THIS WEEK

Contract Awards
Millions of Dollars

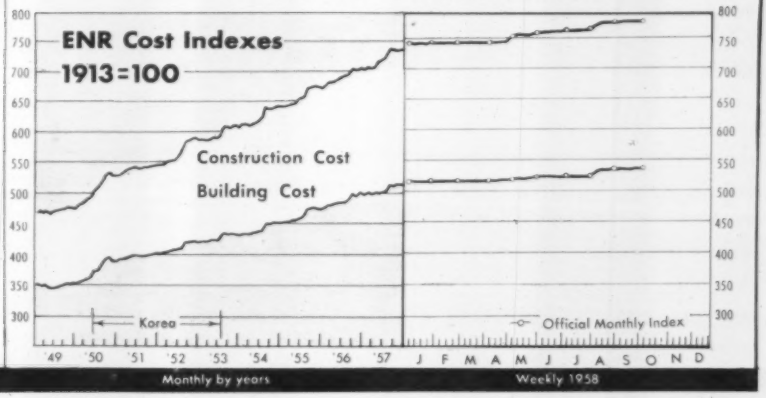


COST INDEXES AS OF NOW

ENR INDEXES (1913=100), 20-cities' average	Week of Oct. 2 1958	% Change from Aug. 28 1958	% Change from Oct. 3 1957
Construction Cost	775.30*	+0.2	+5.2
Building Cost	536.53*	+0.3	+3.8

* Official Monthly Index for October 1958.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 41 wks 1958 millions	Chge '57-'58 %
All Heavy Constr.	$353.1	$15,928.5	+8
Private	125.2	6,415.8	−6
Public	227.9	9,512.7	+20
State & Municipal	184.3	7,008.5	+18
Federal	43.6	2,504.2	+27
By Type of Work			
Public			
Waterworks	6.0	254.5	−8
Sewerage	10.3	490.0	+10
Bridges*	20.5	581.7	+2
Highways	92.7	2,941.6	+20
Earthwork, Waterways	18.8	901.2	+4
Buildings, Excl. Housing	49.5	2,183.6	+18
Housing	9.2	969.9	+78
Unclassified	21.9	1,200.4	+34
Private			
Mass Housing	72.8	3,090.7	+27
Commercial	34.1	1,518.5	+10
Industrial	11.2	1,451.2	−45
Unclassified	6.1	345.2	−10

* Includes private bridges.

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of Oct. 2	Cum. 40 wks 1958 millions	Chge '57-'58 %
Corporate Securities	$47.5	$4,232.0	−4
State and Municipal:			
All Except Housing	144.0	5,015.3	+18
Housing	0.7	114.5	−27
Federal Loans	1.5	159.0	−7
Federal Aid	...	2,596.2	+20
Total Nonfederal	$193.8	$12,117.0	+9
Federal Appropriations:			
Projects in U. S.	...	$3,946.1	+42
Outside U. S.	...	35.2	+21
Total New Capital	$193.8	$16,098.3	+15

WAGE RATES, 20-cities average

	Oct. 1958	% Change from Sept. 1958	% Change from Oct. 1957
Common	$2.477	+0.2	+6.1
Skilled (average 3 trades)	3.753	+0.3	+4.1
Bricklayers	4.001	+0.2	+3.7
Structural Ironworkers	3.768	+0.5	+4.0
Carpenters	3.489	+0.3	+4.7
Equipment operators (average three types)	3.390	+0.1	+4.7

MATERIAL PRICES, 20-Cities average

Structural Steel (average 3 mills), per cwt	5.50	0	+4.3
Lumber, 2x4 Fir, per M fbm	118.43	+0.8	+3.1
Lumber, 2x4 Pine, per M fbm	103.62	+0.5	+3.2
Cement, bulk, per bbl	3.954	+0.1	+0.8
Sand, per ton	2.550	+0.6	+2.5
Ready-mixed concrete, per cu yd	13.838	+0.4	+0.9
Gypsum sheathing, ½"x2'x8', per Msf*	62.876	0	−0.4
Fiber board sheathing, ½" sq. ed., per Msf*	71.445	+0.1	+0.2
Mineral wool insulation, 3' batts, per Msf*	70.618	0	−0.5
Crushed stone, 1½", per ton, CL	2.849	0	+1.4
Concrete blocks, sand gravel, 8"x8"x16", each*	.229	0	0
	Sept. 1958	**Aug. 1958**	**Sept. 1957**
Brick, common per M	37.518	+0.1	−0.4
Lime, hydrated finishing, per ton, CL	38.713	0	+6.1
Structural clay tile, 3x12x12", per M, 2,000 up*	185.403	0	+1.8
Vitrified clay sewer pipe, std 12", per ft	1.318	0	+0.5
Concrete sewer pipe, 12", per ft	1.342	+0.1	+10.7

* Delivered, trucklots

ENR INDEX REVIEW

	Construction Cost		Building Cost		Volume	
1957	**1913=100**	**1919=100**	**1913=100**	**1919=100**	**1913=100**	**1949=100**
Oct.	737.14	154.53	516.78	146.90	506	146
Nov.	737.43	154.59	516.81	146.91	457	132
Dec.	738.08	154.73	516.27	146.76	357	103
1957 Average	**723.85**	**151.74**	**508.67**	**144.59**	**517**	**150**
1958						
Jan.	743.44	155.85	516.79	146.90	368	106
Feb.	743.77	155.92	515.78	146.62	446	129
Mar.	744.41	156.05	516.09	146.70	520	150
Apr.	745.78	156.34	516.61	146.85	585	169
May	751.57	157.56	518.62	147.42	674	195
Jun.	757.31	158.76	521.09	148.13	661	191
Jul.	762.52	159.85	524.29	149.03	705	204
Aug.	764.44	160.25	525.62	149.41	575	193
Sep.	773.47	162.15	535.02R	152.09R	541	156
Oct.	775.30	162.53	536.53	152.51	...	...

R: revised

Here's how to handle your handyman dirtmoving jobs

FAST...ECONOMICALLY

with L-W Tournapull® Scraper

Check the dollars you lose in using a 12-yard scraper to do small-yardage odd-jobs that can be done in same (or less) time with a 9-yard scraper

Some contractors figure, since cost of the operator is the same, they can do handyman clean-up jobs economically with production scrapers. Check your own cost figures and make an actual dollar comparison of these extra expense items. Use your own job costs and see how much it actually costs to use big scrapers on small scraper jobs.

Extra equipment cost ... depreciation, interest, insurance, etc.....	$.....
Approx. extra operating cost, based on extra horsepower and weight ... fuel, lube, service....	$.....
Approx. extra maintenance cost ... tires, repairs, etc.....	$.....
Lost pay-yard production while on odd-job service ... yards per hour.....	$.....

Every "big" dirtmoving job breaks down into work sections ... some suitable for "big" equipment ... some suitable for "small" equipment.

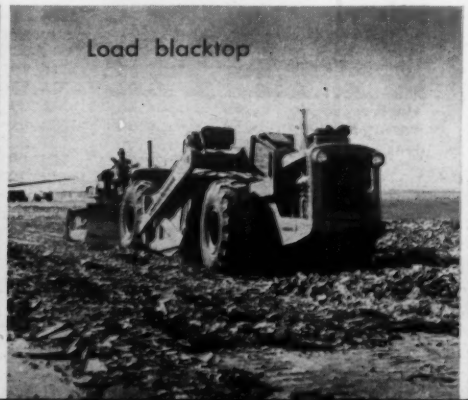
A handyman scraper (like the LeTourneau-Westinghouse D Tournapull with 9-yd scraper) fills the need for a fast, flexible, self-propelled tool which works economically on both big and small-yardage jobs.

It can handle pioneer dirtmoving before the rest of your equipment moves in. It can build, gravel and maintain good haul-roads to speed your production dirtmoving. It can develop drainage systems for your water-trapped cuts and fills so that you can work one or more spreads through shut-down weather. It can handle short and shallow cuts, where your big scrapers wouldn't be economical because they couldn't get a full load on a one-run pass. It can do the ditch excavation needed along your shallow-grade cuts.

It can follow production fleets to fine-grade between forms, build access roads and driveways, finish shoulders, spread gravel and topsoil, haul in selected grade material, haul and spread topsoil over median ditches, slopes and shoulders, and perform dozens of other odd jobs like those shown here. By handling these "headache" jobs on a high-speed, economy basis, the handyman scraper cuts delays and expenses that eat into your profits.

When it runs out of odd-job service assignments, the handyman scraper fills in well with any combination of push-loaded production equipment. With pay-load capacity of around 7 pay yards, these small size scrapers produce worthwhile yardage. Their easy loading and dumping characteristics, quick maneuverability, plus speeds to 29.5 mph, enable these smaller rigs to often equal, and sometimes outperform, your big capacity, but bulky and slower-moving, crawler-and-scraper combinations. While the D-size rigs can't equal cost-per-yard of the big 12 to 18-yard rigs on production earthmoving, they will pay their way on production in spare time between "handyman" earthmoving assignments.

On weekends, off-hours, or between more pressing assignments, these handyman scrapers can also give you extra profits by doing small hourly-rate or by-the-job contract work for neighboring farmers and businessmen. They are also the No. 1 tool on subdivision, airport, and other grading contracts for scattered, light-cut work requiring speed, agility and close clearances.



Modern D Tournapull capacity is 7.3 yards struck . . . 9 yards heaped. With 8′ overall width and axle-load well within 9-ton limit, unit is roadable without permit. More than 3000 "D's" are in service all over the world.

1. Roadability via highway without permit is a "must" to facilitate fast, quick moves anywhere, anytime. This calls for meeting BOTH 8′ width limitation and 9-ton axle-weight limit.

2. Look for ability to get heaping *push* loads in average dirt, under favorable conditions, in 45 seconds or less loading time. Scrapers should *self-load* to 60% of heaped capacity in 1 to 1½ minutes in dirt of light to medium density.

3. Be sure you can handle capacity loads without overloading clutch, transmission and tires.

4. You need high maneuverability, easy steer, ability to make 90° turns. You also need ability to steer and spread simultaneously on slopes.

5. Frequently working alone, your "handyman" must be able to pull out of mud holes or soft spots without assistance.

6. These utility scrapers should be able to fill against foundation walls, piers, alongside new pavement. They must be easy to steer accurately, able to make short turns, able to spread close against side obstructions.

7. Since you will need them on clean-up for finished grade, you need accurate blade control. Wheels should be inside cutting edge.

8. Because travel on new paving is often involved, minimum weight, and use of tires at minimum inflation are important. This will permit operation over new slab, curbs, sidewalks. Minimum weight and inflation are also important on finishing operations to prevent rutting of finished grades before final surfacing.

9. Since all rubber-tired machines in this class operate with approximately the same ratings of engine power, clutch, transmission and tires, high machine weight and bowl capacity should be checked against probability of expensive maintenance, excessive downtime and short tire-life.

10. Initial cost is a major item on machines largely involved in non-revenue dirtmoving. In your production fleet, you want the largest scraper that the one-man operator can keep busy, considering depth and length of your cuts. Extra initial cost here, pro-rated on a per-hour basis, is easily recovered in extra yards moved per hour. But, on the "handyman" service, mobility, speed, accuracy and agility are the pay-off factors. Much of your load and spread in this type service involves light cuts and short loading runs. Extra investment in maximum bowl capacity, and heavy construction to carry it, can't pay off against slow-downs in speed and increased maintenance costs on the part-time production-fleet application where you *might* benefit.

11. Remember, you are buying these 138 "horses" primarily for speed and mobility type applications. Every unnecessary pound of machinery and extra load-carrying capacity reduces their ability to "run". It is obvious that, when a tool is engineered for two opposing types of application, it must compromise in both directions. That means you lose efficiency wherever you use it.

12. Check experience, of course. The handyman scraper that has wide use and experience under all the varied conditions of world-wide service is likely to give you most efficient service, minimum downtime, and most profitable performance.

Your handyman scrapers do all these jobs faster, easier, and at lower cost

Grade access roads
Backfill foundations
Mine topsoil
Grade driveways
Shape backslopes
Strip overburden

Haul sand
Fine-grade for paving
Fill hoppers
Load blacktop
Backfill culverts
Blade shoulders
Cut drainage ditches

Spread gravel
Spread topsoil
Fill-in on production
Spread select material
Finish-grade medians
Push-load and doze

DP-1738-G-2

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

September Contract Awards Slip 17%

Private work drops to 1958 low, with mass housing showing the only gain; state, local contracts up

Declines in private and federal construction contract awards dumped ENR's heavy construction contract awards total in September to $1,348 million. That's 17% below the August figure, but 8% higher than last September's total. However, awards of $15,080 million for the first nine months of this year top by 7% the figure for the same period in 1957.

Responsible for September's decline were sharp drops in private and federal construction contract awards. Private awards of $409 million last month were 43% below August and at a 1958 low. Federal awards of $130 million were 22% below August.

State and municipal work, however, turned up last month. The total volume of $809 million made September the third best month this year on a weekly average basis.

Highway awards jumped to $419 million—ahead of August's record rate and more than twice the contracting rate of one year ago.

Other gains in September were scored by waterworks, up 29% from August; bridges, up 11%; public housing, up 4%, and other buildings, up 8%.

• **All private work down**—In contrast to the several gains in the public works sector, every type of private work fell below both August values and those of a year ago. In fact, September's $409 million of private awards is the lowest total for that month since 1949.

Mass housing contracts, at $222 million, held up best. But they are the smallest since February. Both commercial and industrial building sagged by more than 50% from August and both are more than 30% below one year ago, 33% and 61% respectively.

• **State picture**—Thirty-four states and the District of Columbia scored more heavy construction contracts in the first nine months of 1958 than they did in the same period last year. And every region except the Midwest registered gains ranging from 7% to 18%.

At the end of the third quarter, New York heads the list of states in construction contract awards with a total of $1.75 billion. This is a gain of 18%.

California was second with $1.57 billion, 15% ahead of 1957. Texas was third with a $1.09 billion.

New Highs Scored on ENR Cost Indexes

Scattered wage increases and generally higher lumber prices push the ENR 20 Cities Cost Indexes to record highs this month. However, in seven U.S. cities and in Toronto, Canada, lumber prices slipped as demand turned down.

But higher lumber still accounts for most of the 0.2% rise in the ENR Construction Cost Index to a new high of 775.3 for October. This is 5.2% above the year-ago value.

The Building Cost Index also moved up by 0.3% to a record 536.53 for October and 3.8% above a year ago. Both indexes are based on 1913 = 100.

Douglas fir 2 x 4 prices average 0.8% higher this month than last, according to ENR's U.S. average. Southern pine 2 x 4 price average is 0.5% higher now.

Month-to-month increases in eight cities offset declines in four others. The latest hikes were in addition to September rises in nine cities.

Wage boosts of 5 to 10 cents an hour are reported in three cities. Birmingham common labor, bricklayers and carpenters won a 10-cent raise. Pittsburgh carpenters obtained the same amount, while Boston bricklayers' rates moved up by five cents.

(B&F continued on page 80)

Engineering Construction Contracts—September '58

ENGINEERING NEWS-RECORD *reports contineatal U. S. Construction projects of the following minimum costs—Waterworks excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.

Four Weeks—Thousands of Dollars (000 Omitted)

	September, 1958							U. S. Cumulative Nine Months		% Change	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1958	1957	'57 to '58	September 1958
Public Works											
Waterworks	248	3,990	5,355	2,897	6,360	7,752	**26,602**	**246,267**	262,121	− 6	5,835
Sewerage	7,201	6,947	9,208	10,679	7,736	5,138	**46,909**	**466,621**	424,833	+10	1,788
Bridges	2,600	9,531	17,654	15,906	11,285	4,803	**61,779**	**533,849**	544,859	− 2	4,145
Earthwork and waterways	1,726	5,996	5,389	4,315	7,421	22,410	**47,257**	**823,981**	852,982	− 3	1,330
Streets and roads	22,680	94,598	110,308	70,626	77,993	42,983	**419,188**	**2,732,594**	2,352,899	+16	17,021
Public buildings, residential	3,092	11,445	9,281	3,826	15,594	4,657	**47,895**	**955,946**	818,458	+84	4,580
Other public buildings	11,003	24,606	49,748	27,143	35,969	58,087	**206,556**	**2,041,366**	1,718,413	+19	16,849
Unclassified	7,546	11,124	7,090	33,191	11,298	12,580	**82,829**	**1,154,546**	868,349	+33	2,703
Total public	**56,096**	**168,237**	**214,033**	**168,583**	**173,656**	**158,410**	**939,015**	**8,955,170**	**7,542,914**	**+19**	**54,251**
Federal government (included in above classifications)	8,875	4,855	22,289	35,731	24,347	33,758	**129,855**	**2,382,978**	1,895,971	+26	19,456
Private											
Bridges								**8,996**	3,091	+191	
Industrial buildings	4,980	6,231	7,816	23,950	23,684	15,469	**82,130**	**1,370,646**	2,525,649	−46	25,690
Mass housing	19,243	76,646	15,115	57,596	36,714	16,792	**222,106**	**2,962,624**	2,307,280	+28	8,296
Commercial buildings	7,477	23,299	8,591	22,933	17,490	4,285	**84,075**	**1,444,375**	1,339,139	+ 8	16,763
Unclassified	75	3,907	1,934	867	6,290	7,722	**20,795**	**337,903**	369,100	− 8	6,761
Total private	**31,775**	**110,083**	**33,456**	**105,346**	**84,178**	**44,268**	**409,106**	**6,124,544**	**6,544,259**	**− 6**	**57,510**
Total Engineering Construction:											
September, 1958—4 weeks	**87,871**	**278,320**	**247,489**	**273,929**	**257,834**	**202,678**	**1,348,121**				**111,761**
August, 1958—4 weeks	110,995	381,237	234,890	346,043	324,576	223,934	**1,621,675**				165,418
September, 1957—4 weeks	94,771	315,758	210,021	245,200	218,144	163,202	**1,247,096**				104,799
Nine months—1958	**1,018,627**	**3,822,716**	**2,014,736**	**2,766,674**	**3,006,143**	**2,450,818**		**15,079,714**		**+ 7**	**1,239,797**
Nine months—1957	941,829	3,344,637	1,710,220	3,222,443	2,584,137	2,283,907			14,087,173		1,224,578
% Change '57 to '58	+8	+14	+18	−14	+16	+7					+1

NOW THERE ARE 7*

ANNOUNCING

the newest model in the L-W Adams† grader line

the 135-hp POWER-Flow® 550 with torque converter

- **Forward speed to 26.4 mph — reverse to 23.5 mph**
- **Power and speed automatically proportioned to meet all working conditions**

Now... to give you an even more complete line of work-matched L-W Adams motor graders... LeTourneau-Westinghouse has added a seventh high-speed machine to the series. It's the new, heavy-duty POWER-*Flow* 550 grader with torque converter.

The introduction of this new 135-hp L-W model allows you to choose with greater accuracy the exactly-right Adams grader — heavy-duty, general-purpose, or utility — to meet your working requirements.

With single-stage L-W torque converter, the new POWER-*Flow* 550 automatically balances speed and applied power to match your varying load... automatically apportions the engine drive to provide more power or more speed as needed in your grading work. This means that the L-W POWER-*Flow* grader handles every assignment at the fastest possible speed, and with the greatest efficiency.

Cuts gear-shifting, reduces wear

Delays due to stalling are ended. When bucking heavy loads, the need for frequent gear-shifting is eliminated. Operator gets more work done with less effort. Converter also shields transmission and power-train from damage caused by shock loads... reduces wear and maintenance expenses.

Shifts forward-reverse instantly

In any gear range, POWER-*Flow* 550 power-shifts instantly — from forward to reverse, reverse to forward — by the simple movement of a rocking treadle-type foot pedal. This leaves operator's hands free for steering, or to manipulate other controls.

Cutting ditches... shaping shoulders... sloping banks... spreading fill... final grading... maintaining roads... plowing snow — on all these assignments, 135-hp POWER-*Flow* 550 will keep your work ahead of schedule.

Write us for complete details and work specifications on 550 POWER-*Flow*.

OPTIONAL EQUIPMENT — available for POWER-*Flow* 550 are Power-Shift Moldboard, Scarifier, Cab, Bulldozer, Push Plate, Jebco Elegrader, V-type Snow Plow and Wing, and Snow-Blo Wing.

Check these other important features of the L-W 550 POWER-Flow

- **Power Steering (optional)** — You retain the "feel" of hand steering, with hydraulic power doing the work.
- **Double-Action Hydraulic Braking System** — Pedal-operated service brake automatically applies pressure to transmission brake, as well as to 2 tandem drive-wheels.
- **Rubber-Mounted Engine** — Reduces vibration transmitted to machine... less wear and tear on equipment, less operator fatigue.
- **Foot Accelerator** — Even in heavy traffic, driving the 550 POWER-*Flow* is as easy as driving a truck. Foot accelerator or hand throttle may be used when working.

* Complete L-W Adams line of graders includes: 190-hp POWER-*Flow* 660, and 135-hp POWER-*Flow* 550 with torque converters; with standard transmission: 160-hp "660", 123-hp "550", 115-hp "440", 80-hp "330", and 60-hp "220" utility grader.

Choice of Cummins or General Motors diesel engine on the six larger models.

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Toll Tickets Bring a Big Headache

Transients duck 25-cent charge with commuter passes, cutting the revenues of five Hartford bridges

Transferable five-cent toll tickets are giving the Bridge Authority at Hartford, Conn., an $11 million headache.

The agency must sell that amount in bonds to pay for continued construction on a new bridge and expansion of an existing bridge over the Connecticut River.

Terms of outstanding bonds require that toll revenues exceed by 1½ times the amount actually necessary to pay interest on the debt. But the five crossings operated by the Greater Hartford Bridge Authority are not meeting the requirement because of a toll-rate structure designed to give local, daily commuters a lower rate than transients. They are, however, earning enough to cover actual interest requirements.

Under the present transferable ticket system, transients are using the five-cent ticket instead of paying the 25-cent cash charge at the toll stations. How? Enterprising merchandising methods. Service station operators, motels, restaurants and retail stores for miles on both sides of the river buy quantities of toll-ticket books. Then a ticket is given to customers either as a free premium or sold at cost for five cents each as a sales inducement.

The toll-ticket premium is not limited to commercial interests within the local area either. There are reports that service stations along the Pennsylvania and New Jersey Turnpikes also are distributing the tickets to New England-bound motorists. As a result, cash income from 25-cent payments is equal to only 19% of revenue estimates. Coverdale & Colpitts, New York City consulting engineers for the Bridge Authority, estimates that cash tolls would equal at least 29% of total revenue. This estimate is based on a non-transferable toll-ticket system.

• **Obvious, but not easy**—The quick and easy solution to the problem, which is compounded by traffic volume 20% lower than projected, is switch to the system advised by the engineers.

There are some things in the picture, however, that make this an easier-said-than-done solution. Among them is the "We-were-robbed" complex of some daily commuters who must use the bridges. Until last year, they could cross the 16-year-old Charter Oak Bridge for one-cent and the 51-year-old Bulkeley Bridge without charge.

Now a newly formed Greater Hartford Free Bridge Association is seeking a federal injunction that would deny the authority the right to levy tolls on the once-free bridge. It says the bridge should be a free crossing because it was authorized by the 1899 state legislature and the 1903 Congress as a "free public highway." The court hearing on the injunction is scheduled for next week.

• **Second court test**—The toll is also being tested in state courts by Willard B. Rogers, a banking executive, and the free bridge group. He deliberately refused to pay the toll on Bulkeley Bridge and to the cheers of nearly 500 supporters, submitted to arrest. He subsequently was tried and found guilty in a town court. The decision has been appealed to superior court. Mr. Rogers says he intends to carry the case to the state supreme court if necessary.

Politics also has reared its head. In the current gubernatorial campaign both major parties are blaming the other for the new and higher toll charges. Both candidates for office are also promising that if elected they will take action to make the bridges free crossings. This would be accomplished by retiring the outstanding bonds out of state funds or, more likely, assuming the debt as a state burden to be paid out of general revenues.

• **Education campaign**—Meanwhile the Bridge Authority is considering the possibility of making toll tickets non-transferable. The authority concedes, however, this is a move it does not wish to take. The members recognize that the time required for drivers to come to a full stop, give the book to a collector who will remove a ticket and then return the book to the driver, could result in a serious traffic tieup, particularly during the rush-hours.

Such action would possibly defeat the original purpose of the Bridge Authority and the reason for construction of the three new bridges.

It was argued that the two existing spans were incapable of handling existing traffic, let alone future traffic increases. Traffic tie-ups on the two bridges backed up into city streets. This was serious enough in the early 1950s to warrant new bridges. Therefore, the bridge body hesitates to take steps that might bring a return of tie-ups in rush hours.

Now the authority has embarked on an educational campaign to discourage the use of the low-cost tickets by commercial interests. The authority is explaining the importance of the bridges to business as a whole and that the five-cent toll tickets are for the convenience of commuters, not a means of stimulating business.

Barrier Erected

Court to decide on fate of relocation housing

A group of Cincinnati property owners have initiated court action to block construction of housing for families moved from areas scheduled for redevelopment or other public improvements. The action is a "test" case; the court's decision will determine the fate of other relocation developments. Several builders hold newly acquired options on building sites for this type of housing, according to the Cincinnati office of the Federal Housing Administration.

The property owners seek a permanent injunction against construction of a 73 unit project. They argue that the seven multiple-unit buildings proposed would violate existing zoning regulations. Their area limits a residential structure to four living units. Three of the proposed structures would each contain 11 living units and four would contain 10 units.

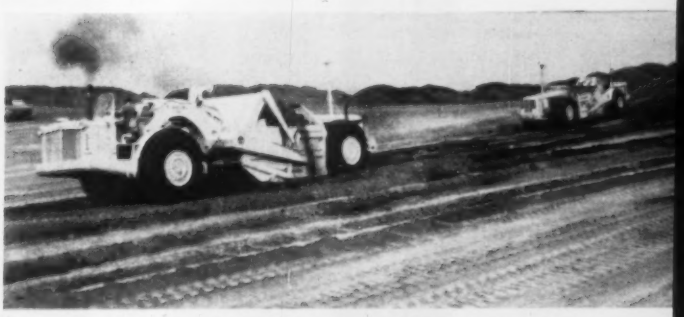
If Common Pleas Court grants an injunction, other projected public improvements could be delayed—particularly urban redevelopment. This type of housing generally affects areas that are predominantly residential; many families must be relocated before work can begin.

Cincinnati is not alone in its opposition to relocation housing. Construction under Section 221 of the National Housing Act is lagging nationally because of community-erected barriers, investor disinterest and the ceiling on construction cost (ENR May 1, p. 22).

Atlanta is certified for 5,500 individual housing units under Section 221, but fewer than 300 building permits have been issued. Local officials have practically specified "221" housing out of the market, say FHA officials. And in this city, relocation housing is considered the backbone of the local urban renewal and expressway system programs.

BIG JOBS... *prove Euclid "Twins" move the cheapest dirt*

C. J. Langenfelder & Son, Inc. used four "Twins" and other Euclid equipment on an 800,000 yd. plant site job in Maryland. The TS-24's self-loaded 18 bank yds. of dense clay in 2 minutes or less . . . made good cycle time on short hauls with high rolling resistance.



Counting on "Twin" productive capacity, N. A. Degerstrom Const. Co. was low bidder of 23 contractors for grading U. S. Route 2 near Davenport, Wash. On one section two "Twins" moved 14,500 yds. in 31 working hours on the 5½ mile, close-to-a-million yard, job.

Vinnell Const. and McCammon & Wunderlich chose "Twins" for grading home sites in Beverly Hills, Calif. Six TS-24's averaged 1500 bank yds. per hour on 2500 ft. round trips with grades of 25% and more.

Hyde Const. Co. and Cook Const. Co., both of Jackson, Miss., had to move about 50,000 yds. a day to stay on schedule for their 10 million yd. job at Meridian Naval Air Base. A fleet of 9 "Twins" made the dirt fly . . . loaded 26 bank yds. of sand in 50 seconds.

List & Clark Construction Co., long-time Euclid owner, has added "Twins" . . . used 3 TS-24's on a 5.7 mile Interstate Highway project in Kansas involving more than 1¼ million yds. of excavation.

You get greater **R.O.I.*** *with Euclid "Twins"*

25 "Twins" are part of a fleet totalling 120 Euclids that's helped Western Contracting Corp. keep their 24½ million yd. job at Oahe Dam ahead of schedule. Loaded with about 30 yds. they average over 18 mph for the 2.2 mile round trip.

42 "Twins" used on the Illinois Toll Road by these contractors: Western Contracting Corp.; L. F. Fleming; McCarthy, Mass & Dillon; Ralph Myers Contracting Corp.; W. M. Wyant Co.; L. G. Arnold & Griffith & Sons; C. K. G. Associates; James Peterson & Sons Co. and Kluck Construction Co.

Morrison-Knudsen Co. used two "Twins" on hard to handle clay core material at Noxon Rapids Dam. The "Twins" were push-loaded by "super" tractors for maximum production on this 4 million yd. project in western Montana.

Contractors Fail to Check Wage Rise

Unions jump over recession hurdle to win substantial pay boosts despite a variety of contractor defenses

Wage settlements during the last few weeks indicate that the recession has lost its edge.

Unions seem to be backing away from earlier inclinations to soften their demands. Contractor resistance is generally stiff. Strikes are common and lockouts have been used in a few areas. Yet nearly two-thirds of recently reported settlements have given workers in construction and allied trades pay increases of 15 cents or more an hour.

This trend, which centers largely in the Midwest and southwestern states, alarms some contractors and is alerting others to what they consider to be the need for a solid front among employers. They have made some unions keenly aware of the ever-present competition of non-union workers.

• **Costs**—Contractors in Milwaukee, Tulsa and Houston, where bargaining has been tight, are taking a dim view of rising wages.

Milwaukee builders say new increases of 10 and 15 cents for most crafts will mean a 1.5% boost in residential construction costs.

A two-week strike in Tulsa against the Associated General Contractors ended last month in a new contract granting a 15 cent wage boost to teamsters, carpenters, laborers and cement finishers. An AGC negotiator there says he's "not at all proud of or pleased with" the settlement and adds: "I think this will result directly in industry going to other places where they can get labor at a fair price. I believe this will damage the whole economy of Tulsa." (The settlements followed a three-month extension of the old contracts agreed to last May when the unions adopted a "go slow" policy because of the recession.)

In Houston, the AGC and the Construction Employers Association accepted a multi-million-dollar carpenters' strike, now in its sixth week, rather than give in to demands (45 cents) they think will cost more in the long run. They fear high wage demands by other crafts and an increase in union power that could raise construction costs by 10%.

And in Toronto, the Builders' Exchange entered the "gravest crisis" in its labor history in September when it countered a cement mason's strike with a shutdown. "It boils down to the fact that the contractors are getting tired of being pushed around by the unions all these years," the Exchange says.

• **Unity**—It's inevitable that contractor emphasis on employer unity should emerge in such an atmosphere. A good example occurred in Milwaukee, where the painters won a 15 cent pay boost last week after a 32-day strike.

The Allied Construction Employers Association, central labor agency for most contractor groups, had authorized 10 cents an hour wage increases in one-year contracts. The Southern Wisconsin Asbestos Contractors Association, an ACEA member, went its own way, however, and settled a six-week strike by asbestos workers with a three-year contract calling for a 20 cent pay boost now and 15 cents in each of the next two years. As a result, ACEA directors have decided to expel the association. (Wage-wise, the Milwaukee results are fairly mixed. Bricklayers, carpenters, laborers and plasterers won 10 cents. Sheet metal workers, plumbers, steamfitters and electricians got 15 cents.)

Indiana's Northern Lake County Lumber Builders' Suppliers and Coal Employers Association has just had similar trouble in its teamster negotiations. All association members agreed in writing that a strike against one would be a strike against all. When seven members were struck by the teamsters, an association-wide shutdown was called. One member didn't go along and the association has filed a $100,000 damage suit against it. (The strike ended September 25 in a three-year contract granting immediate 15 to 30 cent wage increases with deferred pay boosts of 10 cents. The settlement also guarantees 40 hours' pay for any week worked.)

The New Mexico Sheet Metal Contractors Association, with the help of the courts and the National Labor Relations Board, has blocked union efforts to negotiate with contractors individually instead of with the association.

A similar situation—but one more difficult to control—cropped up in Tulsa, where some developers ducked a paralyzing strike by directly underwriting the union demands.

Developers of the Brook Plaza Shopping Center, for example, took over direct payment of the union payroll from the contractors and met the unions' demands in order to keep the work going. The AGC, which offered 12½ cents now and 2½ cents in January, settled for 15 cents immediately. Unions had asked for 22½ cents.

• **Union problems**—Where the negotiations have been particularly tight, unions have had the difficult task of deciding how much they can demand without risking too much.

Settlements and wage scales in other areas have apparently been a persuasive factor. In Houston, the carpenters union figures its present scale of $3.075 an hour is too low if you look at what unions are getting in other areas. So it justifies a 45 cent wage demand by pointing to the $3.46 scale enjoyed by carpenters in 100 other cities.

The risk side of the problem in some strike-bound areas involves a lot more than loss of wages and public esteem. In one Canadian wage dispute, contractors served notice on the striking union that the open shop would be applied to all jobs. In Louisville, the United Mine Workers' District 50 flirted with employees of a crushed stone company, while the teamsters union dickered for several weeks over terms of a new contract to replace the one that expired in mid-summer. And apparently mindful of such risks, 1,400 Dade County, Fla., painters, who have just won 50 cents in a two-year contract after a three-week strike, agreed not to picket during the strike as long as contractors didn't resort to the use of non-union painters.

Clash With District 50 Goes Before the NLRB

A jurisdictional dispute between the Buffalo Painters District Council and an out-of-town contractor that hired United Construction Workers is now before the National Labor Relations Board trial examiner in Buffalo.

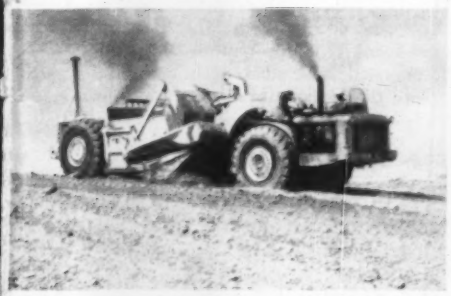
The dispute arose on a Curtiss-Wright Corp. plant, where Boyd E. Hart Co., an industrial painting concern from Ohio, was working.

The company claims that the painters picketed the job to provoke a work stoppage to get the painting work.

(*Labor continued on page 84*)

Medium and Small Jobs...

prove versatility of Euclid "Twins" pays off



Hopkins Const. Co. of Denver finshed a 1.7 million yd. stripping contract in one-third the allotted time with 2"Twins"that worked 20 hours a day six days a week and never missed a shift—an 87% availability record.

J. R. Bryant Contracting Co. chose the "Twin" for a close-quarter settling basin job near Pensacola, Fla. On a narrow dike the TS-24 makes a tight turn, dumps and pulls out of the sand... averages 8 trips per hour from a borrow pit 2,000' away where it self-loads.

Hassell Bros. Ltd. used two "Twins" for grading work at Vancouver Island airport. The TS-24's moved up to 7,000 yds. per ten hour shift, self-loading clay and gravel under adverse working conditions.

Working a 9 hour shift, a TS-24 moved 2500 yds. a day on a Pennsylvania road job of Bracken Construction Co. All-wheel drive and 518 h.p. enabled the "Euc" to high-ball from cut to fill and average less than 6 minutes for a complete cycle on the 2000 ft. round trip.

Two "Twins" strip overburden at a phosphate mine of J. R. Simplot Co. in Idaho. Working at an elevation of 10,000 ft. they self-load and haul about 300 pay yards of clay and shale an hour... climb 50 to 60% grades on the return trip.

You get greater **R.O.I.*** *with Euclid "Twins"*

R. L. Eatherly Const. Co. of Nashville, in pipeline work for years, recently bid and got a Tennessee road job. A TS-24, their first self-powered scraper, handled the complete 50,000 yd. job in 4 weeks.

B. D. McMillan's fleet of 3 "Twins" first worked on a highway job near Comanche, Texas and are now on a 5 mile channel improvement project of the U. S. Corps of Engineers near San Antonio. A TC-12 "Euc" crawler push-loads for high speed production.

R. H. Jones chose 2 "Twins" for a levee enlargement project in Mississippi. With all-wheel drive and big tires, these "Eucs" were the only scrapers that got on the levee and through the soft fill without help.

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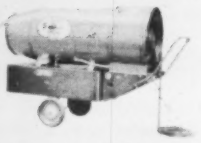

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No Work Assignments for NLRB

Labor board refuses to settle jurisdictional disputes on their merits; finds its present system effective

Contractors were assured last week that the National Labor Relations Board does not intend to get into the business of making work assignments.

The board said once and for all that it will not settle a jurisdictional dispute on its merits unless and until the courts or Congress forces it to. It will not say that disputed work belongs to this or that craft and it will continue its policy of making negative determinations.

This was NLRB's answer to attempts to involve it in a series of disputes that arose in New Jersey between carpenters and lathers over the installation of T-bars and gypsum board in acoustical ceiling work.

NLRB now interprets the law on jurisdictional strikes this way:

- If the parties to a dispute are bound by the procedure of the National Joint Board for the Settlement of Jurisdictional Disputes, NLRB will not hear the dispute, but it will take necessary action to stop a resulting strike. This means the only way the disputants can air their grievances is to go before the Joint Board.
- NLRB will hear the dispute if one of the parties is not under the Joint Board procedure. It will only decide, however, whether the offending union has a legitimate claim to the work under its representation rights. NLRB thus avoids making an affirmative work assignment.

- **The reasoning**—NLRB gave these four reasons for its decision in the New Jersey cases:
- It "protects the right of the employer to select his employees and to make work assignments."
- NLRB would be discriminating in favor of union members if it tried to make work assignments. The law prohibits this.
- Settling jurisdictional disputes on their merits would encourage more such disputes. The board thinks unions would call strikes as a gamble for a favorable NLRB decision.
- The board's present approach has "effectively promoted industrial peace." In 11 years, the board has made 65 determinations under Section 10(k) and only 14 cases required follow-up action.

- **Some clarifications**—NLRB has further strengthened the use of voluntary methods for the settlement of jurisdictional disputes. This is what the AFL-CIO Building and Construction Trades Department and a number of contractor associations have long been fighting for.

But the problems on the jurisdictional front remain. Unions and contractors still have lots of educational work to do in explaining the law, how the Joint Board works and how the rights of individuals, including subcontractors, are affected by labor contract and by union and contractor association by-laws and constitutions.

This became apparent when the NLRB attempted to clarify a number of points in its New Jersey decisions.

The NLRB said, for example, that only one type of voluntary agreement prevents the board from hearing a dispute. This is an agreement entered into by the contractor responsible for assignment of the disputed work. If the responsible contractor is a sub, he is not bound by his general's acquiescence in the Joint Board procedure unless he has consented to be bound by it. If he is a member of a contractor association that subscribes to the Joint Board agreement or that refers a dispute to the Joint Board, he is not bound to the Joint Board procedure without his consent unless the association has the authority to act in his behalf.

The board also made it clear that a non-consenting contractor is not drawn into the Joint Board procedure by submission when he sends information on the dispute to the Joint Board at the latter's request. (In one of the New Jersey cases, a contractor association reported the dispute to the Joint Board. The latter asked the contractor for details on the dispute. Thinking the Joint Board was a governmental agency, the contractor complied. He didn't intend to submit himself to the Joint Board—and the NRLB said he hadn't.)

NLRB said a contractor responsible for the disputed assignment accomplishes a voluntary submission to the Joint Board by seeking the latter's advice on a projected assignment of work. It is immaterial that the submission occurs before any work assignment is made or before the contractor has the contract for the disputed work.

The AFL-CIO Building and Construction Trades Department and the Joint Board have been trying to promote in labor contracts and subcontracts the incorporation of consent to the Joint Board procedure.

(*Labor continued on page 86*)

R.O.I.*

BIG JOB or Small Job . . . *in contracting, mining and industrial work . . .*

Productive Capacity of Euclid "Twin" Scrapers Provides Greatest *RETURN ON INVESTMENT

The earning power of Euclid TS-24 Scrapers has helped beat the profit squeeze on all kinds of work and on all sizes of jobs. With costs on the rise, obsolete or inefficient equipment doesn't help your competitive situation or your profit picture . . . can cost you jobs and money. To get your share of the bids — at prices that bring you a fair profit — you've got to increase productivity of men and machines without increasing costs. A lot of contractors have already found the "Twin" is by far the best answer to the problem.

It's no secret that equipment sales fell off considerably last year. Many contractors had idle equipment . . . contract awards were down . . . manufacturers' and dealer inventories were high . . . it was a "buyers" market. In the face of this declining market, deliveries of Euclid "Twin" Scrapers were up 226% over the previous year. The reason is quite simple . . . productive capacity and versatility that means a greater return on investment in spite of higher initial cost.

For example, a single engine 18 yd. scraper pushloaded by a "super" tractor will produce about 120 yds. per 50 minute working hour on a 2000′ haul under average conditions. A "Twin", self-loading under the same conditions, would average 170 yds. Use your own cost figures and you'll find that the return on capital investment for a 2000 hour work season is far greater with the "Twin".

And that's not the whole story either . . . not by a long way. Here's why: for small yardage, pioneering and clean-up work the TS-24 is self-loading and independent of other equipment . . . all-wheel drive lets the "Twin" work under conditions that keep other scrapers idle and adds working days on every job. For the hurry-up, big production jobs where you're pressed for time and yardage, a pusher tractor for loading will boost production tremendously.

When you compete with contractors using "Twin" Scrapers you're bidding against all-wheel drive, more horsepower, more capacity more work-ability, and most important of all *more return on investment*. Can you afford to pass up the profit potential of the TS-24? See your Euclid dealer for facts and figures proof and a demonstration on your job.

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Engineers: Seelye, Stevenson, Value & Knecht, New York City
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The site of this 19-story, half-block-square hotel in Jacksonville was nearly all sand. The foundation required several kinds of specialized work, which were awarded to Spencer, White & Prentis.

Soldier beams, horizontal sheeting and bracing (see photo) were used on 3 sides. This type of support made it unnecessary to cope with heavy hydrostatic pressure, since the openings between the sheeting permitted drainage during Florida's tropical storms.

Pit underpinning secured the J. C. Penney building, at right.

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Teamster Tangle

Hoffa's presidency is the issue in new action filed by union monitors

James Hoffa's chances of gaining full control of the teamsters union dimmed last week.

Martin F. O'Donoghue, chairman of the court-appointed board of monitors, filed a legal challenge of the compromise settlement that installed Mr. Hoffa as the union's provisional president. If the challenge is sustained, the original injunction that barred Mr. Hoffa from office would again become effective and the lawsuit contesting the validity of Mr. Hoffa's election last year would have to be continued. The challenge is now before Judge F. Dickinson Letts of the U. S. District Court in Washington.

But the legal issues have become so snarled that a final decision on Mr. Hoffa's future will not be forthcoming for some time.

The monitors have asked Judge Letts to bar Mr. Hoffa from calling a special union convention in February. They claim the union has not instituted enough reforms to assure an honest election. Mr. Hoffa apparently feels he would be reelected. If he were, the monitorship would be dissolved.

Also before Judge Letts is a monitors' petition to clarify their function and to give them more power.

The union also has filed a petition for the removal of one of the monitors, Godfrey P. Schmidt, on charges of conflicts of interest, which Mr. Schmidt denies.

The next step in the legal tangle will be hearings on the petitions, when scheduled by Judge Letts.

Union Shop Enforcement Not the Employer's Job

A court in California has ruled that it is not the employer's responsibility, when he has a union shop agreement requiring employees to be union members, to force his employees to join the union.

His responsibility "is merely . . . to discharge an employee who fails to join after a proper demand has been made by the union."

The case involved a Ralph L. Smith Lumber Co. employee who claimed he offered to join the union after the union demanded his dismissal. He said the union would not accept him. The Smith firm delayed the firing for 11 days and the union charged this violated the labor contract and weakened the

union. It claimed $20,000 in damages.

The court denied the damages because the union had not shown it had offered membership on terms available to other employees or that the employee had not offered to pay initiation fees and dues.

The court did not rule on the question of whether a union can collect damages for actions that weaken the union.

Labor Units Defer Merger To Assure Political Unity

The building trades and industrial unions in Toledo have put off efforts to effect a local labor merger until Nov. 4.

They thus hope to avoid inter-union squabbling during labor's campaign to defeat the right-to-work proposal that will appear on the Ohio ballot.

The right-to-work issue is an important one for organized labor generally. Ohio is one of six states in which voters will be given a chance this year to add to the 18 right-to-work laws now in effect.

Stumbling block in the merger is the jurisdictional feud between industrial unions and the building trades unions. The latter accuse the former of trespassing on their jurisdiction by performing construction work in industrial plants. A proposed constitution was drawn up for the local merger but it was vetoed by the AFL-CIO because it attempted to incorporate a settlement plan for jurisdictional disputes of this kind.

Merger efforts will be resumed after the November elections.

Housing Authority Fouled By Davis-Bacon Mandate

A municipal houring authority ran into trouble last month, when it tried to give jobs to men out of work and to save money.

The trouble, which stemmed from the Davis-Bacon prevailing wage requirements, occurred on a 200 unit, low income housing project in Manchester, N. H.

The authority had assembled a crew of unskilled workers from the ranks of the unemployed living at the project to paint the buildings. It paid $1.50 an hour—93 cents below the prevailing wage.

An official of the local painters union filed a protest with the Federal Housing Authority. He said the law required the payment of prevailing wages for painters whether the work was done by union or nonunion men. The FHA ruled that the authority had to pay $2.43 an hour for the work.

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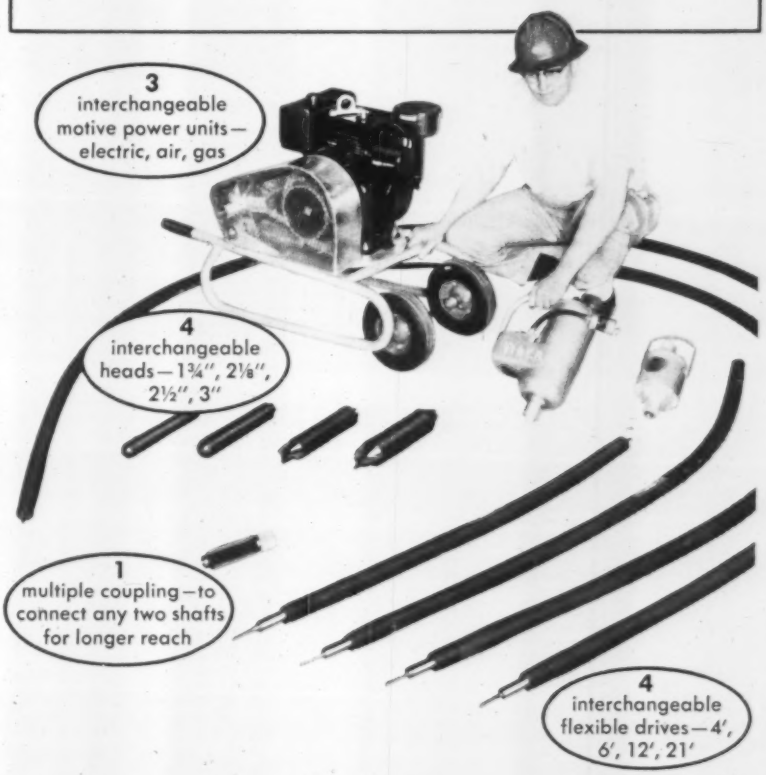
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4 interchangeable flexible drives—4', 6', 12', 21'

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OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: November 19, 1958

Office of the Director of the Department of Public Works of the City of Newark, New Jersey

City Hall, Newark, N. J.
Date: October 8, 1958

Job Nos. 4164 and 4165 Division of Water Supply

Sealed Proposals will be received at 10:00 A.M. Eastern Standard Time on Wednesday, November 19, 1958, by the Director of the Department of Public Works in Room 309, City Hall, Newark, New Jersey, and then and there at 10:00 A.M. publicly opened and read for the following work which is a part of the Charlotteburg Reservoir Project:

CONSTRUCTING RIVER WALL AND CONSTRUCTING DAM AND RESERVOIR, which will be awarded in two separate Contracts, or in one combined contract, as follows:

CONTRACT NO. CRP-4 RIVER WALL
CONTRACT NO. CRP-5 DAM AND RESERVOIR

COMBINED CONTRACT NO. CRP-4-5 RIVER WALL, DAM AND RESERVOIR

The work under each Contract includes, but is not limited, to the following:

CONTRACT CRP-4 RIVER WALL: This Contract consists of the construction of a river wall along the upstream reach of the future reservoir, adjacent to the tracks of the New York, Susquehanna and Western Railroad. The wall will be approximately 2,000 feet long, and will consist of a plain concrete section approximately 1,600 feet long, varying in height between 6 and 26 feet, and an adjacent reinforced concrete crib section approximately 400 feet long, varying in height between 12 and 16 feet.

The work will include construction of channels, dikes, impervious blanket covered with riprap, and other incidental work.

CONTRACT CRP-5 DAM AND RESERVOIR: This Contract consists of the construction of a concrete gravity dam across the Pequannock River, located approximately one and one-half miles upstream from the existing Macopin Intake Dam, and the relocation of the Charlotteburg Pond-Timberbrook Road.

The concrete dam will be approximately 700 feet long with a maximum height of 100 feet above foundation rock, and will include a spillway 200 feet long surmounted by a bascule gate 5 feet high, a stilling basin, an intake structure complete with operating equipment, a gate house, and other appurtenances.

The relocated section of the Charlotteburg Pond—Timberbrook Road will be approximately 2 miles long, and the relocation will include the construction of a 3-span roadway bridge across the Pequannock River, approximately 180 feet long.

COMBINED CONTRACT NO. CRP-4-5: This Contract includes all work included under Contract CRP-4 and Contract CRP-5.

BIDDERS WHO SUBMIT A BID FOR COMBINED CONTRACT CRP-4-5 MUST ALSO SUBMIT SEPARATE BIDS FOR BOTH CONTRACTS CRP-4 AND CRP-5. BIDDERS WHO DO NOT SUBMIT A BID FOR COMBINED CONTRACT CRP-4-5 MAY SUBMIT A BID FOR CONTRACT CRP-4 AND/OR FOR CONTRACT CRP-5.

The Drawings, Specifications, Instructions, and Information for Bidders, the Bid or Proposal, Contract and Bond forms are on file and may be seen at the office of the Division Engineer, Division of Water Supply, Department of Public Works, Room 101, City Hall Annex, Newark, and at the office of Parsons, Brinckerhoff, Hall & Macdonald, Engineers, Sanitary Department, Room 602, 55 Broadway, New York, New York. Copies may be obtained at the office of Parsons, Brinckerhoff, Hall & Macdonald upon deposit of twenty-five dollars, which sum will be refunded upon return of the Drawings and Specifications in good condition within 30 days after the opening of bids or upon submittal of a formal Bid.

An Agreement of Surety signed by a Surety Company authorized to do business in New Jersey shall accompany each Proposal for execution of Contract on award thereof. Said Agreement of Surety shall be in conformity with the requirements specified in Instructions and Information for Bidders.

Contract No. CRP-4 and Contract No. CRP-5 will each be awarded to their respective lowest responsible Bidder, except that the work will be awarded to the lowest responsible Bidder for Combined Contract No. CRP-4-5, if the sum of the low bids for the two Contracts exceeds the low bid for the Combined Contract.

All Proposals are subject to the requirements of all laws and City ordinances affecting same. The Bidder's attention is called to Section 2.58 of the City Administrative Code.

By direction of the Director of the Department of Public Works of The City of Newark.

George W. Andress
Director, Department of Public Works

Bids: October 30, 1958

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
THE CONSTRUCTION OF
SUPERSTRUCTURES
FOR
THE AMERICAN RAPIDS BRIDGE
AND APPROACHES AT
NIAGARA FALLS, NIAGARA COUNTY,
NEW YORK
SPECIFICATIONS NO. 5826 B
NIAGARA CONTRACT NO. N 15

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of the Superstructures for the American Rapids Bridge and Approaches, Niagara Falls, New York until 10:30 a.m. Eastern Standard Time on the 30th day of October, 1958 at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are as follows:

Structural Carbon Steel	1,600,000 Lbs.
Structural Low Alloy Steel	2,750,000 Lbs.
Bridge Bearings	170,000 Lbs.
Aluminum Railings	4,000 L. F.
Class 1A Concrete	600 C. Y.
Class 2 Concrete	3,000 C. Y.
Lightweight oncrete for Bridge Deck	400 C. Y.
Portland Cement (Type II)	6,000 Bbls.
Stone Masonry	400 C. Y.
Asphalt Plank Paving	1,200 S.Y.
Bar Reinforcement	240,000 Lbs.
Foundation Course & Cement Concrete Pavement	1,000 C.Y.

The work shall be completed on or before October 31, 1959.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at The Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents, and five ($5.00) dollars per set for additional sets, no part of which shall be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's New York Office, and at the Authority's Field Office, 2640 Main Street, Niagara Falls, New York and in the offices of the Engineer, Praeger-Kavanagh, 126 East 38th Street, New York 16, New York and may be inspected by prospective bidders during office hours.

Bids must be made in accordance with the instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 per cent of the gross sum price bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: November 11, 1958

City of Richmond, Virginia Notice to Bidders

Sealed Proposals will be received at the office of the Director of General Services, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A.M. E.S.T., November 11,1958, at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

Type of Work: The work to be done is part of the Sewage Disposal Project, is entitled "Division M—Canal Bank Trunk Sewer", and comprises the construction of approximately 4,278 linear feet of 24-inch and approximately 1,950 linear feet of 15-inch reinforced concrete culvert pipe sewer, complete with al manholes, house connections, special crossings, tunnelling, and all other structures, as shown, specified and directed.

Location: The sewer is to be constructed from the site of the Gambles Mill Road Pumping Station, located on the south side of River Road at Gambles Mill Road, southeastward in right-of-way adjacent to the northeast bank of the James River and Kanawha Canal, to a location south of Charmian Road, in the City of Richmond, Virginia, and partly in Henrico County, Virginia

The Proposal must be submitted on the proposal forms included in the Contract Documents.

The Proposal, Instructions to Bidders, Contract, Performance Bond, Instructions to the Contractor, Specifications, Plans and other Contract Documents may be examined at the office of the Director of Public Works, 217 Governor Street, Richmond, Virginia and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the Contract Documents may be obtained from the office of the Director of Public Works, upon the deposit of Twenty-five Dollars for each set. Any party who submits a bona fide bid on the project will be refunded his payment in full for not more than three sets, and will be refunded Fifteen Dollars per set for each additional set. All others will be refunded Fifteen Dollars per set upon the return of the documents in good condition within ten days after the opening of bids.

It shall be understood that all documents referred to in this Notice to Bidders shall be carefully examined and read and are all hereby made a part of the Proposal.

J. W. HUFFMAN,
Director of General Services

U. S. Government

GOVT. OF DISTRICT OF COLUMBIA, DEPT. OF HIGHWAYS AND TRAFFIC, D. C., September 24, 1958. SEALED PROPOSALS will be received in Room 404, 499 Pa. Ave., N.W., Wash. 1, D. C., until 2 PM, EDT, October 22, 1958, and then publicly opened and read for constructing the Anacostia Freeway Overpass at Naval Research Laboratory (Federal Aid Project No. I-04-1(7)), consisting of approximately 19,000 cu. yds. of Backfill and Fill; 1,800 cu. yds. concrete; 170,000 lbs. reinforcing steel; 9,550 lin. ft. "Cast-in-place Concrete Piles"; 1,800 cu. ft. Stone Masonry; 180,000 lbs. Structural Steel; and 570 lin. ft. 20-Inch Prestressed Concrete Pipe Water Main, including Fittings and Specials. Minimum wage rates for this project has been predetermined as required by law and are set forth in the bid proposal. Proposal forms, plans and specifications obtainable from Supervisor, Bid & Contract Section, Procurement Office, D. C., Rm. 404, 499 Pa. Ave., N.W., upon deposit of a certified check for $20.00 per set, payable to D. C. Treasurer. (phone Na 8-6000, Ext. 2378).

OFFICIAL PROPOSALS

Bids: October 16, 1958

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
CONSTRUCTION OF
NIAGARA PARKWAY SECTION I and
RELATED FACILITIES
AT
PROSPECT PARK AND GOAT ISLAND
NIAGARA FALLS, NIAGARA COUNTY,
NEW YORK
SPECIFICATIONS NO. 632.0
NIAGARA CONTRACT NO. N18

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Niagara Parkway Section I and Related Facilities at Prospect Park and Goat Island, located in Niagara Falls, Niagara County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 16th day of October, 1958 at the Authority's Office, 18th Floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are:

Estimated:

130,000	Cubic Yards	Excavation, unclassified
4,300	Cubic Yards	Concrete for structures
5,700	Cubic Yards	Cement concrete pavement
500,000	Pounds	Bar reinforcement for structures
460,000	Pounds	Structural Steel
12,500	Tons	Asphaltic Concrete pavement

The work shall be completed on or before December 15, 1959.

Plans, Specifications and Proposal Forms for the work, may be obtained from the Power Authority of the State of New York, at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents, and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's New York Office and the Authority's field office, 2640 Main Street, Niagara Falls, New York, and in the offices of the Engineer, Clarke and Rapuano, 830 Third Avenue, New York 22, New York, and may be inspected by prospective bidders during office hours.

Bids must be made in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 26 percent of the gross sum price bid.

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

Bids: November 12, 1958

Lehigh-Northampton Airport Authority

NOTICE TO CONTRACTORS

The Lehigh-Northampton Airport Authority will receive sealed Proposals for the demolition and reconstruction of part of an existing runway and the site preparation work required for a new 5000 foot long runway. Proposals will be received by the undersigned until 1:30 P.M. (E.S.T.) November 12, 1958 at the office of the Lehigh County Commissioners, Court House Annex, 523 Hamilton Street, Allentown, Pa., and will be publicly opened after 1:45 P.M. (E.S.T.) of the same day.

Copies of the Plans, Specifications and Proposal Forms can be obtained at the Engineers, 546-548 Hamilton Street, Allen-office of G. Edwin Pidcock Co., Consulting town, Pa., upon payment of Forty Dollars ($40.00) for each set. Any Bidder, upon returning such set in good condition within ten (10) days after the opening of the Proposals, will be refunded Twenty-Five Dollars ($25.00) of his payment.

The work under this contract shall be done in accordance with the "Standard Specifications for the Construction of Airports" (Civil Aeronautics Administration) as published by the United States Government Printing Office in January 1948, and revised and supplemented in August 1951 and June 1956. Copies of these Specifications can be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., at a price of $3.50 each.

Each Bidder must deposit with his Proposal, a certified check or surety company's bid bond in an amount of not less than five (5) percent of the Alternate Bid 1 as defined in the Instructions to Bidders.

Proposals must be submitted in duplicate on the prescribed forms provided, and in accordance with the Instructions to Bidders. No Bidder may withdraw his Proposal within thirty (30) days after the actual date of the opening thereof. The Lehigh-Northampton Airport Authority reserves the right to waive any informalities in, or to reject any or all Proposals.

The minimum wages paid all labor employed on this project shall be as tabulated in the Specifications and as approved by the Secretary of Labor of the United States.

ROBERT L. FOX
Secretary, Lehigh-Northampton
Airport Authority

EDWIN K. KLINE, JR., Solicitor

Bids: November 25, 1958

Mississippi River Bridge Helena, Arkansas

Sealed bids for construction of the following portions of the Mississippi River Bridge and approaches near Helena, Arkansas will be received simultaneously by the Arkansas and Mississippi State Highway Commissions at 10:00 A.M., November 25, 1958.

Contract No. 1, River Bridge Substructure, consisting of caisson piers for the river bridge.

Contract No. 2, Approaches to River Bridge—Substructure, consisting of piers and abutments for the approaches to the river bridge.

Contract No. 3-6, Relief Structures—Substructure and Superstructure, consisting of construction of piers and abutments and fabrication and erection of superstructure and deck, using either steel beams or precast prestressed concrete beams for two 1000-foot relief structures.

Contract No. 4, River Bridge Superstructure, consisting of fabrication and erection of superstructure metalwork and deck construction for the river bridge.

Contract No. 5, Approaches to River Bridge—Superstructure, consisting of fabrication and erection of superstructure metalwork and deck construction for the approaches to the river bridge.

Contract No. 7, Embankment and Paving, consisting of approximately 1.23 miles of embankment and paving.

Contract No. 8, Toll Collection Facilities, Utilities and Lighting, consisting of office building; garage building; toll booth; toll collection equipment; site grading and surfacing; bridge and area lighting; water, gas and power supply.

Plans and specifications may be obtained from Howard, Needles, Tammen & Bergendoff, 1805 Grand Avenue, Kansas City, Missouri. Bidders must be prequalified in both Arkansas and Mississippi.

Arkansas State Highway Commission
Glenn F. Wallace, Chairman
Mississippi State Highway Commission
T. C. Robbins, Director

Bids: October 29, 1958

Borough of South Plainfield New Jersey

Sealed proposals for construction of a sewerage system and appurtenances will be received by the Borough of South Plainfield, New Jersey Sewerage Authority at the Borough Hall, 119 Hamilton Boulevard, South Plainfield, New Jersey at 6:30 P.M. Eastern Standard Time, on October 29, 1958, after which time they will be publicly opened and read aloud. No bids will be accepted after said hour. Proposals will be received on the following contracts:

North Central Section....Contract 2
Northwest Section .....Contract 3
Central Section .....Contract 4
Northeast Section .....Contract 5
Sewage Pumping Sections Contract 6
Electrical Work .....Contract 6E

In the event proposals are mailed, they must be forwarded to Mr. Henry V. Decker, Chairman, Borough of South Plainfield, New Jersey Sewerage Authority, 232 East Golf Avenue, Plainfield, New Jersey.

Information for Bidders, Proposal forms, Specimen Contract, Plans, Specifications and copies or specimens of all pertinent documents may be examined at the offices of Bowe, Albertson & Associates, Engineers, 75 West Street, New York, New York, and at 232 East Golf Avenue, Plainfield, New Jersey, between the hours of 10:00 A.M. and 4:00 P.M. daily except Saturdays, Sundays and holidays.

Copies of the plans and specifications may be obtained from the Chairman of the Borough of South Plainfield, New Jersey Sewerage Authority at 232 East Golf Avenue, Plainfield, New Jersey and from the offices of the Engineers, upon making a deposit of Fifty ($50.00) dollars for Contracts 2, 3, 4 and 5 and Twenty-five ($25.00) dollars for Contracts 6 and 6E, which will be refunded to bidders only who apply for a refund within thirty (30) days after the date bids are opened and who return the plans in good condition.

Extra copies of the specifications may be obtained at a cost of Ten ($10.00) dollars each and extra sets of plans at a cost of Twenty-five ($25.00), which will not be refunded. Extra sheets of plans may be obtained at a cost of One ($1.00) dollar each, which will not be refunded.

A certified check or a cashier's check made payable to the order of the Borough of South Plainfield, New Jersey Sewerage Authority, or a duly executed bid bond in the amount of 5% of each bid, must be deposited by the bidder with his bid as a guarantee that, in case a contract is awarded to him, he will execute such contract and furnish a satisfactory Performance Bond. Acceptance of the bid will be contingent upon fulfillment of this requirement by the bidder and on failure to do so, he shall forfeit the deposit.

The Authority reserves the right to reject any or all bids, to waive any informalities or to accept the bid or bids which in its judgment will be for the best interests of the Borough of South Plainfield.

BOROUGH OF SOUTH PLAINFIELD,
NEW JERSEY SEWERAGE
AUTHORITY
By: Henry V. Decker
Chairman

BOWE, ALBERTSON & ASSOCIATES
Engineers

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5114) will be received at Red Bluff, California, until November 6, 1958, for furnishing labor and materials for railroad and highway siphon, Corning Canal, Station 34+93 BK to Station 39+50 BK, Sacramento Canals Unit, Central Valley Project, California. Location near Red Bluff, California. Principal items are furnishing and laying 235 lin. ft. of 102-inch concrete pipe, 17,250 cu. yds. excavation, 211 cu. yds. concrete; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, P. O. Box 752, Red Bluff, California, or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

GOVT. OF DISTRICT OF COLUMBIA, DEPT. OF HIGHWAYS & TRAFFIC, D. C., September 25, 1958. SEALED PROPOSALS will be received in Room 404, 499 Pa. Ave., N.W., Wash., D. C., until 2 PM, EDT, October 23, 1958, and then publicly opened and read for constructing the Anacostia Freeway Overpass and Relocation of Chesapeake Street, Federal Aid Project No. I-04-1 (6), consisting of approximately 9,800 cu. yds. Unclassified Excavation; 3,150 sq. yds. reinforced portland cement concrete pavement; 1,565 lin. ft. combination portland cement concrete curb and gutter; 2,790 cu. yds. Class BB Concrete; 246,000 lbs. reinforcing steel; 3,000 cu. ft. stone masonry facing; and 217,000 lbs. structural steel. Minimum wage rates for this project have been predetermined as required by law and are set forth in the bid proposal. Proposal forms, plans and specifications obtainable from Supervisor, Bid & Contract Section, Procurement Office, D. C., Rm. 404, 499 Pa. Ave. N.W., upon deposit of a certified check for $20.00 per set, payable to D. C. Treasurer. (phone NA 8-6000, Ext. 2378).

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• POSITIONS VACANT

Highway Engineers—Highway Engineers with a minimum of 3 years experience. Excellent opportunity with established consulting engineering firm in Middle West. P-7909, Engineering News-Record.

Engineer-Management. Associate with legal and/or accounting training—development and construction of oil company terminal projects—New York and East Coast areas. P-8716, Engineering News-Record.

Cost Estimator—With Heavy Construction Experience. Firm is established but growing, Upstate New York—Municipal Contractor. Desire young ambitious engineer. Salary and future dependent on ability. Furnish resume and references. P-8867, Engineering News-Record.

Water Treatment Engineer Must have had experience in the design of filtration plants, water softening, and iron removal. Registration desirous but not necessary. Consulting Engineering firm in the Midwest. State education, background and experience. P-8887, Engineering News-Record.

Construction Superintendent—Water Filtration. New England firm seeks man of mature judgment with heavy background in industrial or municipal filtration. Must supervise and assume complete responsibility for installing filtration equipment. Sound knowledge of piping, pumps, chemical feeders and related equipment necessary. Position involves travel U.S.A. Send complete resume of experience and salary requirements. P-8965, Engineering News-Record.

Structural Engineer—Midwestern prestressed and precast concrete producer needs experienced man to design products and help customers use them. Good experience for imaginative man interested in new ideas in structures. Reply giving resume of education, experience, etc. P-9005, Engineering News-Record.

Civil Engineer: City of Middletown, Ohio, invites applications. Registration as a professional Engineer in the State of Ohio required. Salary starting $6843.20 per year with increase after six months and each year thereafter for next three years to final salary of $8132.80 per year. Also fringe benefits. Contact Director of Public Service, P. O. Box 530, Middletown, Ohio.

Architectural draftsman for school and shopping center planning. Experience required—First class draftsman and designer, specification writing. Permanent position for qualified man. Write P. O. Box 207, Lancaster, Ohio giving qualifications, experience and salary or call Lancaster, Olive 3-4316 for appointment.

Aggressive graduate Civil or Structural Engineer aged 25-33 as estimator and office engineer in Louisiana. Experience in concrete quantity take-off and handling sub-contracts preferable. Incentive bonus plan. Salary $160.00/week to start. Opportunity for first class man leading to management of Southern Office of construction company engaged in specialized concrete structures. Write full resume. Starts immediately. P-9038, Engineering News-Record.

GRADUATE CIVIL or ARCHITECTURAL ENGINEERS

We are looking for a young, recent college graduate, with a degree in either architectural or civil engineering, for a position in our El Paso, Texas—Estimating Department. This position provides a training ground for our future superintendents and executives. It is an excellent opportunity for a young man to obtain a desirable position with a reliable firm doing all types of construction work.

ROBERT E. McKEE
GENERAL CONTRACTOR, INC.
PO BOX 562 EL PASO, TEXAS

• POSITIONS VACANT

Graduate engineers experienced in soils and construction materials testing. Thompson & Lichtner Co., 8 Alton Place, Brookline 46, Mass.

Civil Engineering Draftsmen for structure and piping layouts. Salary in accordance with ability and experience. Apply: Gardner & Sterling, Consulting Engineers, Calvert & Bond Sts., Salisbury, Maryland.

• POSITIONS WANTED

Civil Engineer, Registered, Member A.S.C.E., 25 years experience in Highway and Expressway Design, 10 years in responsible positions, interested in making permanent connection with consulting firm. Salary and location open. PW-8857, Engineering News-Record.

Construction accounting-public relations executive, fluent Spanish, presently engaged highway program Latin America country desires financial-accounting managership Latin America Heavy construction. PW-8879, Engineering News-Record.

Superintendent of heavy excavation earth and rock. PW-8930, Engineering News-Record.

Estimator—Chief Engineer with experience in both field and office on all types of work, invites replies from progressive Heavy Construction Contractors. PW-8961, Engineering News-Record.

Supt. or General Foreman—age 43—over 18 years experience highway construction supervising earthmoving equipment, excavating, drainage. Know men, methods and cost. Available at once. A-1 references. PW-8958, Engineering News-Record.

Civil engineer, graduated, 6 years varied design and field experience, wants responsible position Southwest—South. PW-8957, Engineering News-Record.

DON'T FORGET THE BOX NUMBER

Heavy Construction Manager

Seeks opportunity in Great Lakes area or Middle Atlantic States.

PW-8946, Engineering News-Record
Class. Adv. Div. P.O. Box 12, N.Y. 36, N.Y.

• POSITIONS WANTED

Structural Engineer, 50, leaving for Australia October 26, 1958 will welcome opportunity to work as Engineer or technical representative. Have been self-employed as Consultant to Architects and Industry for the last 14 years. Detailed resume on request. PW-8970, Engineering News-Record.

Graduate Student (Structures with some Sanitary) age 28, 2 yrs. exp. in Sanitary field work. Available Feb. Prefer Midwest. PW-8962, Engineering News-Record.

Electrical Engineer: Thirty-Five years experience all phases of electrical and mechanical construction and operation. Married, no children, free to travel. Excellent health. Layout and design. Prefer field construction. PW-8976, Engineering News-Record.

Manager of engineering and/or sales. 36, energetic, 14 years design, sales, application heavy steel forms for dams, tunnels, conduits; paving machinery, batching and ready-mix plants, clamshell buckets. Desire such connection with manufacturer as to allow Dallas residence. PW-8978, Engineering News-Record.

Project Manager or Construction Superintendent 25 years experience, heavy construction on heavy industrial, steel mill or oil refinery installations. Best references of proven accomplishments, available on short notice. Willing to travel. PW-8981, Engineering News-Record.

Construction Engineer, 23, BSCE, married, exp. as field engineer heavy industrial construction, desire position with gen. contractor in same line of work. Locate Texas or S.E. PW-8987, Engineering News-Record.

(Continued on page 92)

To EMPLOYERS Who Advertise for MEN:

Frequently, when there are many applicants for a position, only the most promising letters are acknowledged. The other applicants never know whether their letters reached a prospective employer or not. These men often become discouraged, will not respond to future advertisements and even question their bona fide character.

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Send resume including salary requirement to R. Farrell.

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MICHAEL BAKER, JR., INC.
Consulting Engineers
Baker Building — Phone SPruce 4-3010 — Rochester, Penna.

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Please write fully, including salary data, to

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915 Olive — St. Louis 1, Mo.

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Well known engineering and construction firm is interested in receiving applications from qualified graduate engineers for work in Central and South America. Must have had highway experience. Should be fluent in Spanish. Pertinent categories follow: Project managers, location engineers, design engineers, soils and materials engineers, construction engineers, maintenance engineers, bridge design engineers, administration and accounts manager.

Interested parties should mail application and resume of experience to:

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Program & Planning Specialist

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Capitol Engineering Corporation
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(Continued from page 90)

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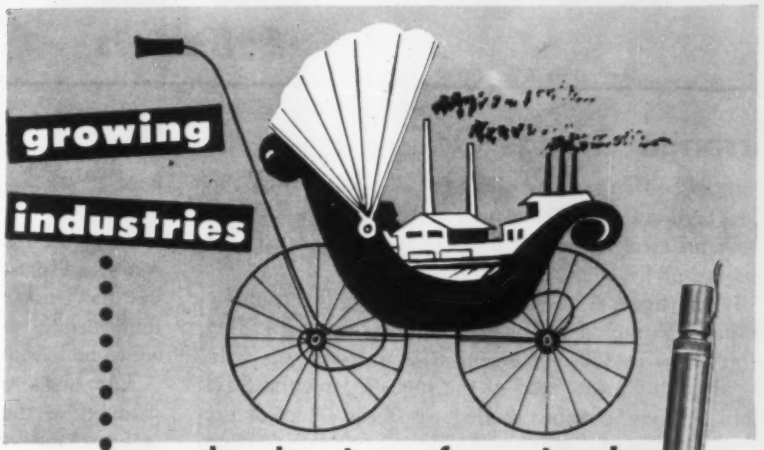

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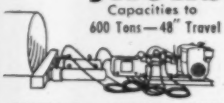

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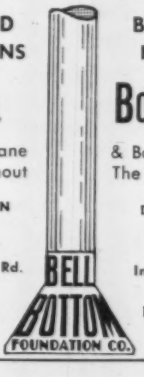

Strange Goings On

A RECENT NEWS ITEM in this journal reported that the state highway commissioner of Virginia must, by law, "be a practical businessman." The governor ruled that this meant he could not be an engineer.

By coincidence, on the same page with this example of political sagacity, it was reported that Adm. Ben Moreell, an engineer of no mean attainment, was retiring after 10 years as head of the Jones & Laughlin Steel Corp. Having, previous to that, also been Chief of the Navy's Bureau of Yards and Docks for a matter of eight years, during which he administered a world-wide construction program measured in billions of dollars, Admiral Moreell would seem to qualify as a practical businessman. Yet he could not be state highway commissioner of Virginia because he is an engineer.

Perhaps, however, there is something about administering highways that rules engineers out of consideration. One could almost draw that conclusion from the recent meeting of the County and Local Roads Division of the American Road Builders Association, where most of the officials attending were not engineers even though the program was wholly technical.

Now these seem to be strange goings on at a time when engineers are occupying administrative positions throughout the whole fabric of business and government. They seem particularly strange in the highway field, where engineers are the key to much needed accomplishment. Some "practical businessmen" can no doubt function efficiently as highway commissioners. But to rule out engineers for such positions makes no sense.

Russians See U.S. Dams

THANKS to some diplomatic horse trading at high government levels between the U. S. and the U. S. S. R., the contingent of Russian engineers attending the International Congress on Large Dams was accorded the same privilege as some 200 of the other foreign visitors—to see American dambuilding in various parts of the country. That this simple fact should be cause for comment is a sad reflection of the times we live in.

Why shouldn't we be glad to have Russian engineers see our dams and our country, just as we are glad to have the French, British, Japanese, Italians, and others get whatever pleasure and benefit they can from seeing how we do things? The answer is that we are—except that we would like our friendly cooperation to be returned in kind as it is by other countries.

The trouble has been that the government of the U. S. S. R. has been pretty choosey about what visitors are allowed to see its dambuilding operations. Now and then a group is let in, but the itineraries have been definitely restricted. So, in this particular case, our Department of State held up permission for the Russians to go on the dam study tours until some comparable concession would be granted by their government. We hope it was a good one, and not a mere trade for the recent U. S. visit to Russia of a group of utility executives, or the visit some months ago of a group of U. S. concrete experts. Both of these visits were worthwhile, but they didn't get far off the paths that any normal tourist could follow. Few of Russia's important dams are to be found on these paths.

The tours, which the Russian engineers took were planned so that our foreign guests from 45 different countries could see the very best we have to offer in our principal dambuilding areas. They were planned by engineers for engineers, with no political advice sought or given.

The Russian engineers who attended the International Congress on Large Dams were all capable professional people. Moreover, their obvious attempt to contribute usefully to the proceedings, both technically and socially, was appreciated by all who came in contact with them. They represented their country well and deserved to be allowed—by their government and ours—to see some of the dambuilding work of which we are justly proud. Their government will be doing them a service and world dam progress a good turn if study tours of Russian dams are permitted on a similarly unrestricted basis.

Hear! Hear!

CLIFTON FADIMAN, in the August issue of HOLIDAY magazine, put his finger on one trouble with the public education system in the U. S. Many before him have waved the red flag and shouted the warning that there is a mess in education. Mr. Fadiman pinpoints why.

The trouble he finds is a perversion of that phrase in our Constitution that guarantees the right to pursue happiness. The happiness our founding fathers had in mind, says Mr. Fadiman, was associated with wisdom and morality. But happiness in our time has come to mean "having a good time." And the good time theory of happiness is playing havoc with education.

Mr. Fadiman calls for a change of the American mind on education. He urges that we admit to the "desire to know," which Aristotle found in all men, and recognize Aristotle's contention that "education is accompanied by pain." Then maybe we'll have children who can "read, write, calculate, speak, listen and think." Maybe we'll have men of thought, creative intelligence.

The Fadiman article is a strong one, and its presentation this month to READER'S DIGEST's millions of readers should bring its strength to bear very widely. Without necessarily subscribing to every statement it contains, we can heartily endorse Clifton Fadiman's basic finding that the American effort to make schooling a pleasure has wrought havoc on the educational system. The sooner we all act to correct this situation, the better.

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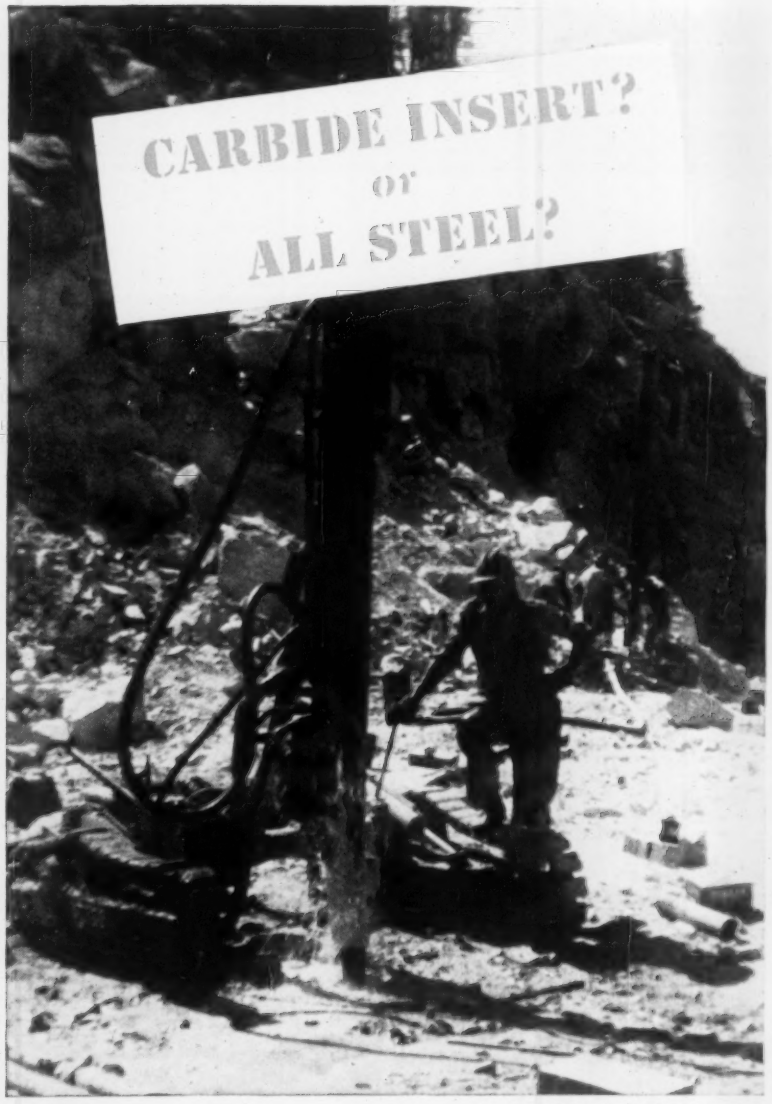

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